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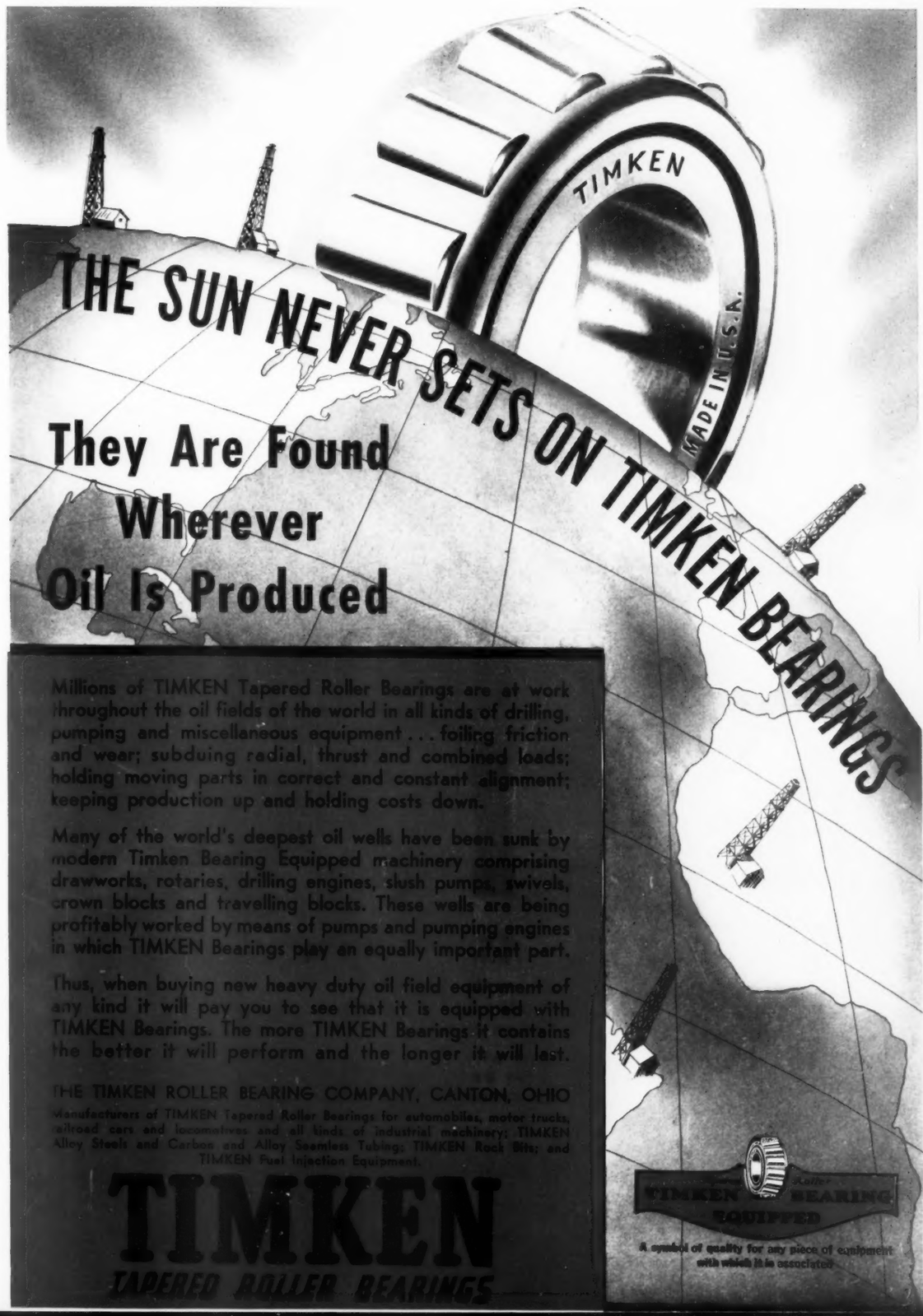
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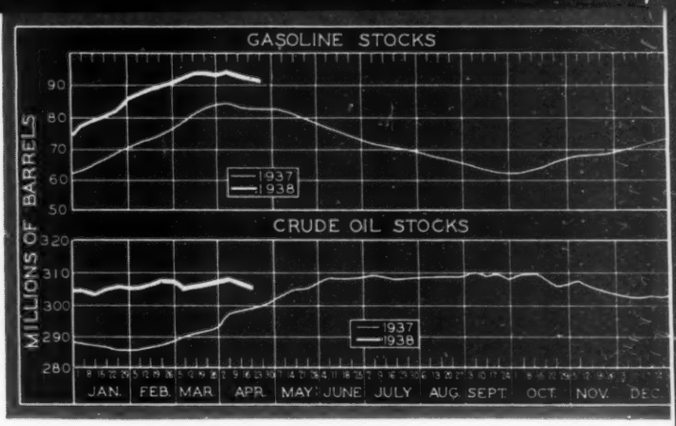


Provisions for Production Cuts

KANSAS producers increased their average daily crude oil output 31,975 barrels in the past week and California producers were responsible for a 9,150-barrel increase in production, which together made up most of the 44,355-barrel increase in the United States. However, it must be said to the credit of Kansas operators that their production the previous week was more than 23,000 barrels per day below the allowable for the state, and in the past week the production was only about 7,000 barrels over the allowable.

CRUDE PRODUCTION *3,427,898 barrels daily average—up 44,355 barrels.*

CRUDE STOCKS *306,774,000 barrels as of April 16—down 782,000 barrels.*

GASOLINE STOCKS *91,479,000 barrels as of April 23—down 522,000 barrels.*

REFINERY RUNS *3,150,000 barrels daily week ending April 23—unchanged.*

The Railroad Commission of Texas on Monday fixed the basic allowable production in May in that state at 1,307,914 barrels per day. During the month there will be five Sunday shut downs. This is 10,523 barrels below the present daily allowable. At a meeting of Oklahoma producers and purchasers with Chief Conservation Officer William J. Armstrong on Monday, producers pleaded for a larger share of the general market, and it was decided to ask the corporation commission to postpone its order establishing May allowables until May 5. The United States Bureau of Mines estimates demand from Texas in May at 1,322,500 barrels per day and from Oklahoma 510,300 barrels per day and from the United States 3,318,100 barrels or 43,600 barrels per day lower than its April nation-wide estimate.

Proration hit the Illinois fields for the first time in the past week when the two pipe line companies gathering oil in Centralia placed a maximum run of 20 barrels per well per day in that field.

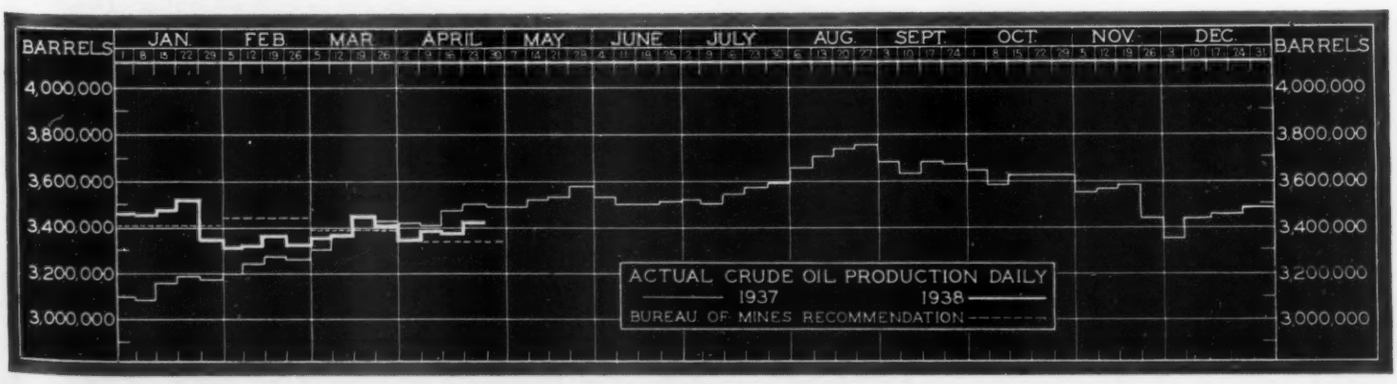
The potentialities of the Central Coal Basin, which covers central Illinois, southwestern Indiana and a part of western Kentucky, were increased this week when a McClosky sand pool was opened in Henderson County, Kentucky, at 1,874 feet, the discovery well flowing about 1,200 barrels the first 24 hours with the pay penetrated only 2 feet. It will doubtless be followed by increased drilling between Richland County, Illinois, and the Kentucky discovery, which will bring southwestern Indiana more prominently into the exploratory play. Discovery of oil in the basin in Kentucky was the most important occurrence of the week in the production end of the industry.

Unsettled conditions continue in the refined-oil market, with excessively heavy gasoline stocks and fear of cuts in the price of crude disturbing factors. Failure of export and coastwise business to meet expectations resulted in burdensome gasoline accumulations at Gulf ports and sharp diminution of shipments to the Gulf Coast from East Texas.

Daily Average Production for Week

	April 23 1938	Bur. Mines Apr. est.	Apr. state allowable	April 16 1938
Oklahoma City	123,475	.....	.....	118,200
Fitts	55,050	.....	.....	53,975
Remainder of state	320,900	.....	.....	325,550
Total Oklahoma	499,425	526,500	475,000	497,725
East Texas	432,400	.....	.....	431,347
West Texas	196,150	.....	.....	194,400
North Central Texas	106,748	.....	.....	107,400
Texas Panhandle	62,096	.....	.....	63,100
East Central Texas	100,700	.....	.....	100,953
Gulf Coast Texas	335,953	.....	.....	331,700
Southwest Texas	105,504	.....	.....	105,100
Total Texas	1,339,551	1,329,800	1,318,427	1,334,000
North Louisiana	79,985	.....	.....	80,455
Gulf Coast Louisiana	182,500	.....	.....	182,900
Total Louisiana	262,485	239,800	252,275	263,355
California	728,750	698,700	698,700	719,600
Kansas	181,900	173,000	173,000	149,925
Arkansas	53,705	40,000	.....	53,420
Eastern fields	141,100	132,600	.....	140,600
Michigan	51,062	51,400	.....	51,836
New Mexico	105,890	106,000	106,000	108,020
Rocky Mountain area	64,030	63,900	.....	65,060
Total United States	3,427,898	3,361,700	.....	3,383,543

Increase, 44,355 bbls. daily.



DIVORCEMENT BILL VIGOROUSLY FOUGHT AT COMMITTEE HEARING

By HENRY D. RALPH

WASHINGTON, D. C., Apr. 25.—Vigorous opposition to the Gillette bill to divorce marketing from other branches of the petroleum industry was expressed before a subcommittee of the senate judiciary committee as hearings on the measure closed last week. Although the subcommittee, particularly Senators Pat McCarran of Nevada and William E. Borah of Idaho, appears to be sympathetic with the purpose of the measure and may make a favorable report on it, the bill is not expected to be acted on by the senate because of the lateness of the session and because of its relation to the whole subject of monopoly, antitrust laws, and business regulation which congress will be asked to study in a special message expected from President Roosevelt.

Senator McCarran, chairman of the subcommittee, admitted grave doubts as to the constitutionality of the measure and has asked the Department of Justice for an opinion. Incidentally, two attorneys of the antitrust division of the department were present at the hearings, John Henry Lewin and W. B. Watson Snyder. A number of the witnesses also challenged the measure's constitutionality, although Paul E. Hadlick, secretary of the National Oil Marketers Association, which is advocating the legislation, filed a brief in support of its validity.

Senator Borah proposed an amendment, which is essentially the pipe line divorcement proposal which has been pending in congress for many years. It would amend the Interstate Commerce Act by making it unlawful for any common carrier engaged in the transportation by pipe line of oil or other commodity, except water or gas, to transport any article produced or owned by it. If congress should take any action designed to break up integrated oil companies it would more likely be along the lines of the Borah proposal than the Gillette bill.

At the opening of the hearings for the opponents, Senator McCarran exhibited piles of letters and telegrams which he had received, saying the correspondence was three to one against the bill and if the committee were to make its decision on the bulk of correspondence there would be no need for further consideration. But at the close of the hearings Senator McCarran observed that the opponents had not refuted the charge that some integrated oil companies are guilty of unfair practices in using profits from refinery and transportation branches to offset losses in the marketing operations to the injury of independent marketing competitors. A number of opponents of the bill admitted a few companies may have engaged in such practices, although they contended that, if this practice exists and congress undertakes to correct it, the remedy selected should not be as harmful to the entire industry as the Gillette bill would be.

The strongest arguments against the bill were presented by J. Howard Pew, president Sun Oil Co.; Paul Blazer, president Ashland Oil & Refining Co., Ashland, Ky., a small integrated company, and W. R. Schuh, of Milwaukee, Wis., president of the National Association of Petroleum Retailers, and by a number of members of this association.

Mr. Blazer observed that the bill states that those who are engaged in marketing cannot be engaged in transportation, and that those who are engaged in production and transportation and refining cannot engage in marketing, and then asked who would engage in business between the refinery and the market. His company has a small refinery using the crude from about 5,000 small wells in Kentucky, transports gasoline by barge to Cincinnati, and has its own distribution facilities in that area. He declared the proposed law not only would divorce the marketing of petroleum products from refining, but it would divorce the transportation of refined products from their manufacture, "a separation which would be fatal to refineries, such as ours, which because of geographical location intermediate between source of crude oil supply and principal markets for refined products, must make use of some form of specialized low cost transportation of refined products to be competitive in the centers of large consumption where most of the refineries of the major oil companies are located."

"More than 75 per cent of our gasoline," Mr. Blazer continued, "is sold to independent jobbers whom this bill is presumed to protect, but without our low cost water transportation we could no longer deliver our gasoline to those jobbers at a low enough price to compete with the major oil companies, who also are competitors for their business, and who, actually, are our principal competitors. This bill involves many dislocations which its sponsors evidently have not thought about. It has not the slightest chance of accomplishing the purposes for which it is intended. The proposed law would require a transfer in the ownership of hundreds of millions of dollars' worth of property; both small and large integrated oil companies would be compelled by law to discharge thousands of employes, many of whom have given the best years of their lives to their present employers, and now have seniority rights which, heretofore, they have considered the equivalent of property rights in their jobs.

No Threat to Monopoly

"Contrary to evidence recently presented to this committee, the marketing operations of the major oil companies involve no threat of monopoly. In fact, it is in the marketing branch that the smaller companies and individual operators are strongest. There is no threat of monopoly at this time in any branch of the oil industry, but if we are ever seriously threatened with monopoly it will be in refining and not in marketing. This bill would tend to promote monopoly in refining because it would take away from small integrated refiners certain transportation facilities essential to their profitable operation."

Mr. Blazer was chairman of an NRA code committee which made a study of this problem and filed a copy of the report with Senator McCarran, declaring that, while the report was being used by advocates of the Gillette bill as an argument for its passage, actually the committee recommended against the sort of divorcement contemplated.

The opposition of the Independent Refiners Association of California was presented by W. C. Scully of Los Angeles, who declared that if the bill becomes law it will force the most violent readjustment of the oil industry ever known to any industry, and that many independent refiners will be forced to the verge of bankruptcy if compelled to default on existing leases on bulk and service station sites, to repudiate existing contracts with wholesale and retail agents, to dispose of motor and other equipment now used in marketing, and to abandon an investment of many years standing. Mr. Scully insisted that if the bill becomes law the business of marketing petroleum will fall into the hands of jobbers who can dictate both refinery and retail prices of gasoline and that their purpose in advocating the legislation is to put themselves in a position to control the field of the present marketing, refining, and producing companies.

Eric V. Weber, president Eureka Oil Co., Cleveland, Ohio, and president of the Ohio Petroleum Marketers Association, said the actual effect would be to reduce the already narrow margin of profit which exists for the jobber, to make it impossible for a jobber to expand by engaging in any other

branch, and to demoralize completely the entire industry. He declared if the object is to increase jobbers' margins the increase can come only through an increased price of gasoline to the consumer, and asked if it is the desire of the committee to enact legislation to raise gasoline prices.

Earle M. Craig, president, Freedom Oil Works Co., Freedom, Pa., declared his company depends on its own trucking operations to maintain a market for its refined products, and if the bill forces it to give up its distribution facilities it would not be able to find markets.

J. Lawrence Hill of Rochester, N. Y., president of the Empire State Gasoline Dealers Association and vice president of the National Association of Petroleum Retailers, said that after careful study the directors of the national association decided its passage would be inimical to the industry with particular reference to the ultimate consumer. He said if legislation of this type is to be enacted it should be amended to divorce wholesale and retail marketing so as to prevent jobbers from competing with their retail customers.

Another vice president of the N.A.P.R., Frank H. Ellis of Pittsburgh, Pa., declared the bill would destroy the market for premium motor oils and branded gasoline by preventing refiners from distributing to their retail outlets and turning the distribution business over to independent truckers. Similar testimony was given by Corwin H. Johns, independent retailer of Decatur, Ill., who feared he might not be able to obtain from independent distributors the nationally known brands on which he has built his business.

Four other vice presidents of the National Association of Petroleum Retailers also testified: Robert M. Thomas, Denver, Colo.; W. M. Boutin, Lake Forest, Ill.; David W. Shaw, St. Louis, Mo.; and M. E. Holland, Racine, Wis. They said the bill would revive the gas peddler, would squeeze the retailer by increasing the tank-wagon price, would be an incentive to price cutting and tax evasion, and would open the way to unethical practices.

Mr. Schuh's Protest

Summing up the testimony of these retailer spokesmen, W. R. Schuh, of Milwaukee, president of the N.A.P.R., declared it the most vicious bill affecting the petroleum industry ever introduced in either branch of congress, and that its advocates are asking congress to legislate for them a short cut to profit.

Mr. Schuh, speaking for his association, said: "We originally intended to try to secure an amendment to the bill to divorce wholesaling from retailing, but after studying it we had no choice but to oppose it. We agree that this industry, which is not a healthy one, has its troubles. I am optimistic enough to believe they can be solved. We always will have trouble. I know there is a solution, but this is not the vehicle, in my judgment, to solve that problem.

"I believe that this is the most vicious bill affecting the petroleum industry that has ever been introduced in either branch of congress. One can only think that those who are its sponsors are motivated by other than fair and charitable reasons. It is most obnoxious for these reasons. It seeks to remove those who have built up this business as a most important industry, by fair means or foul. It takes no cognizance of any one except those few who are always looking for some special privilege. It is asking congress to legislate a profit, or I should say, a short-cut to a profit, for them only.

"No legislation of this type has ever produced the desired result. Should it be passed they will be back here next year asking for more laws and more money to back this one up. Such a revolutionary change in the method of doing business, is bound to set a precedent, the ultimate result of which no one can foresee. I think you will find later on the shoe jobbers and barbers will be here asking you to do the same sort of thing. Good sound business practices which have been developed by years of usage and much strife and trouble would be thrown out of the window.

"May I again call your attention to the utter ruin, which this proposal would cause to the manufacturers of special premium oils, such as those small refineries in Pennsylvania. I would like to stress this point, because I believe it is significant. Lubricating oils is one of our mainstays."

J. HOWARD PEW

"These proposals to divorce marketing are just an entering wedge, driving at a general dismemberment of the integrated units." "I have read much of the testimony your committee has taken, and nowhere have I seen any intimation that the consumers of petroleum products favor this legislation." "It is impossible to believe such a measure would stand the constitutional test; it is equally impossible to believe it could possibly be sustained by any standards of fairness, honor and business integrity."

J. Howard Pew's Opinion

J. Howard Pew, president, Sun Oil Co., denied his company has ever used profits from one branch to subsidize losses in another, and after explaining how the bill would adversely affect the oil industry in general and his company in particular, declared this measure would suffocate competition, would put the marketing business in a new set of hands, and would give these new hands the power to cry down one brand and cry up another in its place. Mr. Pew's statement follows:

"At the outset I want to deny, in behalf of our company, that we lose in one department of the business, but make it up in profits of another. Ours is one of the smaller, independent, so-called integrated companies; but it is not true that we use the profits from transportation and production to compensate for losses in marketing. Rather, we earn profits in every one of the industry's branches.

"These proposals to divorce marketing are just an entering wedge, driving at a general dismemberment of the integrated units. Some 'Independent' refiners have likewise wanted a disintegration that would compel refining to stand alone, and earn its own profits rather than depend upon profits from production and transportation.

"In a word, Mr. Hadlick would undo about everything that has been accomplished in the last few years toward more efficiently operating this industry. 'Independents' of his type of thinking would have the Connally 'hot' oil law repealed; the Interstate Oil Compact torn up, and the Bureau of Mines forecasts discontinued. Now, it is the overwhelming testimony of sincere and disinterested observers that these measures have been highly beneficial. They have promoted conservation, and have greatly reduced the costs of producing oil from the great depths to which the

W. R. SCHUH

"I believe this is the most vicious bill affecting the petroleum industry that has ever been introduced into either branch of congress." "It is asking congress to legislate a profit, or, as I should say, a short-cut to a profit, for them only." "No legislation of this type has ever produced the desired result. Should it be passed they will be back here next year asking for more laws and more money to back this one up."

drill must now go; and thus they have cheapened the consumer's gasoline.

Attitude of Consumers

"I have read much of the testimony your committee has taken and nowhere have I seen any intimation that the consumers of petroleum products favor this legislation. The gentlemen who argue for these bills say that of the four grand divisions of the industry, two are now profitable, two are unprofitable. They want all four made profitable; that is, they want the consumer to pay enough to insure four profits instead of two; and looking at it that way, it isn't hard to understand why no voice of the consumer has been raised here in advocacy of these measures. And let me add that if the millions of consumers knew and understood what is proposed by these bills, you'd have a young army of them here opposing the legislation.

"The one point at which we might find justification for some criticism of this industry, is that it has not been a good customer of the Reconstruction Finance Corporation. I have made careful inquiries and have learned of no instance in which a unit of this industry has had financial assistance from R.F.C. or any other government agency.

"In 1937 federal, state and municipal taxes on gasoline and lubricants, collected by this industry and turned over to public treasuries, were just under a round billion dollars, $992,376,000. In addition, it paid property and other taxes, bringing the total taxes to $1,312,935,361; just about one-sixth of all taxes collected in the country last year.

"I have said that these measures are really part of a sweeping program of dismembering the 'integrated' companies. Under their provisions petroleum products must be sold at the refinery, and from that moment the refinery has nothing whatever to do with them. They have passed into control of the independent marketing agencies that would be set up. That means that we would have to dispose of all the marketing facilities we now possess—gasoline pipe lines, railroad tankcars, fleets of tank trucks, tankers and barges, used in distribution of refined products, and storage plants. The oil industry—not the railroads—owns about 150,000 railroad tankcars. The companies that own them would have to get rid of them, as they would also have to get rid of about 100,000 tank trucks, and many thousand miles of gasoline pipe line. Further, it would compel many of the companies to sell their fleets of ocean-tankships, because these are used in the delivery of refined products. Altogether, I estimate the industry to have an investment of about $3,000,000,000 in its marketing facilities. Somebody would have to take over that investment, and I find nothing in the proposed legislation that suggests how transactions of that magnitude would be financed.

"Various steel companies operate railroads as part of their industrial establishment, and their right to do this has been upheld. Here the analogy to our pipe line situation is perfect. A steel corporation is allowed to own and operate a railroad as part of its industrial plant; and that is exactly what we do with our pipe lines. There has been no abuse of any privilege enjoyed by the pipe lines by reason of being common carriers.

"I wish to say a word about what it would mean to take these oil companies to pieces and set up their various members as separate corporate units. Mass production is everywhere recognized as the great achievement of American industry in this country. Now, integration as we see it in the oil companies is precisely what we mean when we talk about mass production. If the purpose of industry is, as I believe, to serve the consumers' needs at the lowest possible prices, then we can't afford to discourage mass production—the integration of great industries. What do you think a motor car such as you can buy for a few hundred dollars would cost if it came from a blacksmith's shop instead of an assembly line? Henry Ford's organization includes iron mines, coal mines, steamships, rubber plantations, blast furnaces, assembly lines, and a marketing organization reaching to every corner of the world. I admit that if Mr. Ford's cars were built in blacksmith shops it would give employment to an enormous number of blacksmiths; but the answer of course is that the cars wouldn't be built. I doubt if the protagonists of this kind of legislation would seriously propose to do to the Ford establishment, or General Motors, or the Chrysler system, the thing that is here proposed to be done to the oil industry; yet the cases are absolutely parallel. Or take any one of the great steel corporations. It owns its coal and iron mines; railroad lines; ore-carrying steamships; great mills; and marketing system. In a word, it falls exactly into the same four grand divisions as the petroleum industry; production, transportation, refining and marketing. I have seen no suggestion of dissecting these companies into their various parts, and setting each part up as a separate corporate establishment, with each separate and independent entity required to earn its own separate and independent profits—all these multiplied costs and profits to be added together to make the consumers' price!

"Already chain store legislation has driven us out of retailing; the present measures would drive the companies out of wholesale marketing. We would be required to turn over our products at the refinery to the wholesalers, jobbers and brokers who would be waiting outside to receive them and then to distribute them—*at comfortable profits to themselves.* The accusation against us is that at present we do part of this distribution ourselves, and do it so inexpensively that the independent distributors can't compete with us. To that, my reply is, first, that if we can effect this distribution more cheaply than the independent distributors, then we ought to do it, and give the consumer the benefit of the saving.

Assembly Line

"You might as well divorce Mr. Ford's assembly line from the rest of his business, in the hope of either getting cheaper cars or providing more employment, as to divorce its transportation system from this industry in the hope of getting cheaper gasoline or inducing more employment. What would actually happen would be so greatly to increase our costs that people could not afford our products; which would mean ruin to both the motor and oil industries.

"I am not a lawyer, but it is impossible for me to believe that such a measure as this would stand the constitutional test; and it is equally impossible for me to believe that it could possibly be sustained by any standards of fairness, honor and business integrity."

M. R. Singleton, Valvoline Oil Co., declared his concern has always been entirely independent and that its marketing terminal and pipe line facilities are absolutely essential to its existence.

Other witnesses opposing the bill were E. J. Stikman, Stikman Oil Co., Detroit, Mich.; W. R. Tanis, independent dealer, Harvey, Ill.; A. M. Lockhart, Invoy Petroleum Co., Los Angeles; Harry Brown, Associated Oil & Refining Co., North Long Beach, Calif.; Philip A. Smith, independent jobber and trucker of Chicago, Ill.; Hubert B. Fuller, attorney for Ohio Petroleum Marketers Association, and Thomas Keefe, of the American Motorists Association.

Among briefs filed were those by Ethelbert Warfield for the American Petroleum Institute, arguing the proposed legislation would be unconstitutional; by Russell B. Brown of the Independent Petroleum Association of America defending the Connally "hot" oil law and control of crude production which had been attacked at earlier hearings; and by Paul E. Hadlick, quoting Supreme Court decisions and other authorities to justify the constitutionality of the measure.

AT A. C. S. PETROLEUM SECTION MEETING

Dr. Frank W. Hall, director of research for Texas Co., New York City, and past chairman of the Petroleum Section of the American Chemical Society; Dr. J. R. Bailey, department of chemistry, University of Texas; and Dr. J. C. Morrell, associate director of research, Universal Oil Production Co., Chicago, chairman of the Petroleum Section of the A. C. S., at the meeting in Dallas, April 19 (see The Oil and Gas Journal, Page 27, April 21 issue).

Reservations Make Exposition Record

Construction of new buildings and additions is nearing completion, erection of derricks and installation of heavy machinery is under way, exhibits are being placed and the scientific and technical display has been installed in the new Hall of Science in readiness for opening of the International Petroleum Exposition at Tulsa, May 14 to 21.

Advance reservations indicate attendance will surpass that of previous expositions. Tulsa hotels have had more requests for reservations than in other years and will be filled to capacity during the oil show. The housing bureau is arranging accomodations for all who may require them. Earl Sneed is chairman of the bureau.

The fact that there is a housing problem means the exposition will be a success from the exhibitors' standpoint, according to W. B. Way, general manager. "It means that the greatest attendance of oil men in the history of the exposition is in prospect," Mr. Way said.

Not only will the exposition be pleasing to the exhibitors, it will be as great a success from the viewpoint of the spectator. This is proven by a preview of the numerous attractive exhibits, including the big scientific display brought to Tulsa from the Chicago Museum of Science and Industry, and a perusal of the program of various entertainment features.

Visual Refining

While every exhibit at the exposition will be of interest to oil men, the scientific and technical features will be interesting to laymen, as well. This costly exhibit, valued in excess of $250,000, is conveniently and attractively displayed in the Hall of Science, a large building devoted exclusively to this phase. A feature of the technical exhibit, under direction of a committee headed by Dr. Gustav Egloff, is a model refinery. This will provide a demonstration of major refining operations, visually showing how crude oil is transformed into its refined products. Towers, stills, tanks and pipe connections are of glass so the visitor can observe reactions as they occur and follow them progressively.

Transparent maps in the Hall of Science will show the oil fields, gas fields, refineries and oil and gas pipe lines of the United States and the world. Operating models, animated diagrams and static models of density, magnetism, sound wave, electrical conductivity, torsion balance and magnetometer principles; natural gasoline plant, salt dome models, antiknock engines, acidizing, drilling muds, seismograph, aerial photography, causes of crooked holes, cable and rotary tool drilling, principles and ways of water-flooding and other methods of repressuring are but few of the various phases of the petroleum industry illustrated in the Hall of Science.

The exposition grounds and exhibit space is 50 per cent larger than previously. Aside from the Hall of Science, which is a Tulsa State Fair building borrowed for the oil show, exhibit space is further increased by the new Kansas Building, the addition which doubles the size of the Oklahoma Building, utilization of the old Scientific and Technical Building for commercial displays, and enlargement of the grounds for outside exhibits. The new cafeteria building is about double the size of the old cafeteria, and the new office building is as large again as the old structure.

Old Timers' Program

A feature of the exposition this year, as previously, will be the "Old Timers" program, honoring the pioneers of the petroleum industry. This will include selection of the "Grand Old Man of the Petroleum Industry," "Grand Old Man of Tulsa," and the "Pioneer of Pioneers," dedication of a memorial and an entertainment for the veterans of the industry. H. R. Gruber, of Tulsa, is chairman of the committee arranging for this phase of the exposition.

It is the plan of the exposition and its committee to erect a permanent memorial to the men who pioneered the industry. Location of the memorial is in the sunken gardens at the east end of the grounds, near the replica of the Drake well. A vault, to be in the base of the memorial, will contain the history of the pioneers and names of those who attend the exposition. The vault will be opened on Old Timers' Day at each exposition and current additions made to the records. Construction of the base was to begin this week, scheduled for completion by the opening of the exposition. It will be dedicated at 3 p.m., May 15. Additions will be made from year to year, until the memorial is completed. J. P. Flanagan is chairman of the memorial subcommittee.

The replica of the Drake well will be headquarters for the pioneers while at the exposition. Tools used in the original Drake well are to be brought to Tulsa for the exposition and will be in operation at the replica during the Old Timers' ceremony.

The following have been nominated for "Grand Old Man of the Industry": James Franklin Hudson, Bradford, Pa., born in Newton Falls, Ohio, January 1, 1853; Homer T. Lamb, Tulsa, born in Tarrant County, Pennsylvania, January 26, 1878; A. W. Gordon, Tulsa; Samuel B. Longfellow, Hominy, Okla., born in Macksburg, Ohio, in 1865; C. M. Staigers, Pasadena, Calif., born in Currisville, Pa., May 20, 1859.

Those nominated for "Grand Old Man of Tulsa" include: F. M. Selby, Marietta, Ohio, president, Selby Oil & Gas Co., Tulsa, born December 19, 1856; A. L. Braymer, Tulsa, born January 22, 1864, at Black Ash, Pa.; J. E. Crosbie, Tulsa, born in Petrolia, Ontario, in 1862; J. W. Vantine, Tulsa. Those nominated for Grand Old Man of Tulsa are not eligible for selection as Grand Old Man of the Industry.

The "Pioneer of Pioneers," to be selected during the Old Timers' program, will be the oldest oil man to register.

Any individual who has been engaged in the oil industry 50 years or more may be nominated for Grand Old Man of the Industry, according to C. L. McMahon, chairman of the historical subcommittee. Those desiring to nominate candidates for this honor may give the desired information in the coupon below and mail it to the Historical Committee, International Petroleum Exposition, Tulsa. A letter telling of early experiences of the man nominated may be included with the coupon. The nomination should be made prior to opening of the oil show.

Name .....

Address ..... City .....

State ..... Place of birth .....

Date ..... How many years in industry...

First job in industry .....

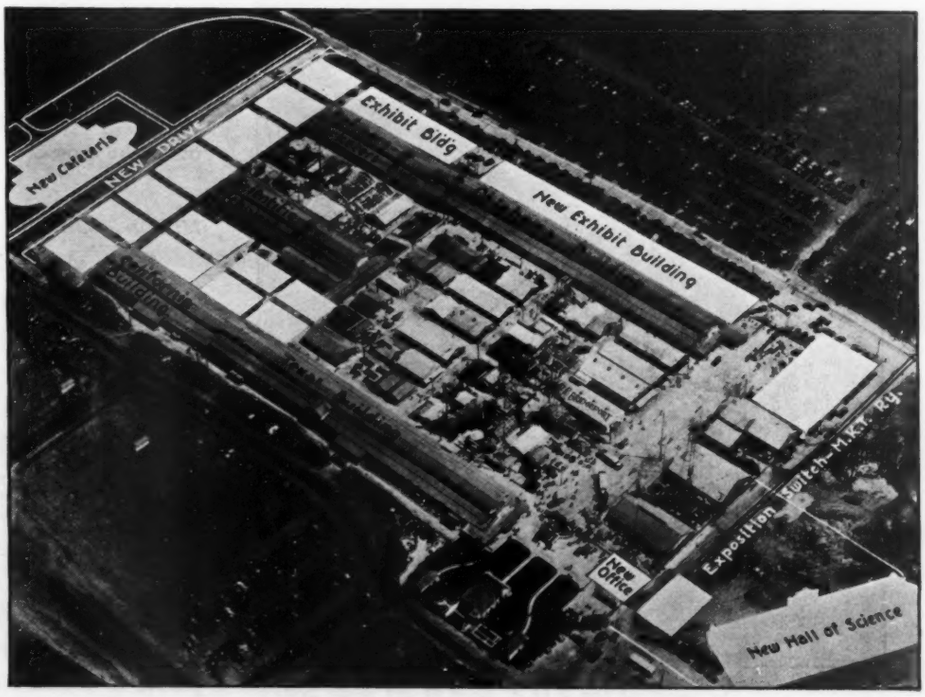
.....

(give place, date, name of Co., kind of job)

.....

Still engaged in oil industry (check) Yes...No...

Entered for: Grand Old Man of Industry..(Check)



International Petroleum Exposition of 1938

SPARKS FROM THE NEWS

DIFFERENCE

Proponents of marketing divorce bills were given undivided attention when they appeared at Washington hearing. Last week when the industry presented its side, interest of subcommittee members waned and two Madison attorneys of the government moved in.

MAJOR CONSUMER

Head of automobile association says 4,241,000 motor trucks are now in operation, the greatest of record. These trucks absorb about 20 per cent of gasoline consumed in this country.

PERMANENT CONDITION

"Excessive potential is no longer a transitory phenomenon —it has become a continuing fact," a major company executive tells the California industry. The conclusion is obvious.

Kemp City in the heart of the K.M.A. field is the most active boom town in Texas today

OLD KENTUCKY

It remained for the driller of a geologically deep wildcat test in western Kentucky to give the industry its most important completion of the week. The test flowed 50 barrels hourly from the McClosky pay.

LEARNING

Rapid decline in the production of new fields caused Arkansas to look with favor on conservation regulations which are to be made effective immediately.

UNFORTUNATE

Refiners from all parts of the Mid-Continent and adjoining areas are in Hot Springs this week attending the annual W.P.R.A. meeting. Many of them got there on gasoline which they produced at a loss.

SAGELY SAID

"A revision upward could easily be made" when justified later is the sage observation of the Shell's head in this country who urges "conservatism" in estimating gasoline requirements for the immediate future.

IT HAD TO COME

Proration has hit Illinois. Pipe lines are taking a maximum of 20 barrels daily per well out of the Centralia field. It won't affect the orgy of town-lot drilling.

MINOR PRODUCT

"They also make gasoline" may be said of the refiners of the future whose main objective will be the manufacture of a long list of more valuable petroleum derivatives.

EARLY RETURNS

Early returns indicate that first quarter earnings of the oil industry are running ahead of last year, which is additional evidence of the value of the efforts to keep supply and demand in balance.

ANESTHETIC, PLEASE

Refiners who recently closed bright stock and neutral plants, or reduced operations, expected the market to snap back. They forgot to chloroform the price-cutters.

Arkansas Conservation Board Makes Drastic Cut in Output

By GEORGE WEBER

EL DORADO, Ark., Apr. 23.—The State of Arkansas has taken an important step toward effective conservation of oil and gas reserves. At an executive session following the statewide hearing held here this week, the Arkansas Board of Conservation considered orders affecting the production and development of the Shuler and southern Miller County fields.

Outstanding among the board's decisions was a drastic curtailment of production and a change of allocation methods in southern Miller County, the Arkansas extension of the tri-state Rodessa field. Downward revision of the field allowable from 15,000 bbls. to 8,588 bbls. daily, a top allowable of 292 bbls. per well per day, and reduction of the allowable gas-oil ratio from 5,000 to 3,500 feet per barrel marked the measures adopted in an effort to correct the alarming pressure decline which unrestricted production brought about in the field.

The proration order for the Shuler field has been postponed, pending completion of a bottom-hole pressure survey to be made May 25 and 26, although it was recommended that 500 bbls. per well per day be considered as a basis in the May Shuler allowable. Incidentally, the Lion Oil Refining Co. announces that effective May 1 it will cease purchasing Shuler crude as it has enough of its own oil to meet requirements.

In addition to the aggressive conservation move, the board has issued a set of basic field rules for Shuler. This form will be used as a basis in drawing up subsequent rules for other areas, contributing to uniformity and clarity in future administration. The system of numbering the field rules of the future will be followed in the same order as that in the Shuler program.

The adoption of proration rules for the Reynolds lime production of the Shuler field was considered by the board, but deferred to a later date. At the present time only two wells are producing from that horizon, one being a gas well and the other an oil well. Due to the discrepancy in gas-oil ratios shown by the two wells, issuing of orders will await completion of a third well, now approaching the final stage. Until that time, operators of the two existing wells have assured the board that production will be curtailed. It is expected the proration order for the Reynolds lime will follow closely that of the Jones sand. A 40-acre spacing rule has been suggested and will probably be adopted.

Future Importance

The action of the board in taking these decisive steps reflects an attitude which will place Arkansas among the foremost states in the application of sound engineering and conservation practices. Although production in the state is small at present in contrast to that of other Mid-Continent and coastal states, important recent discoveries in South Arkansas indicate the development of considerable new production. In view of the certain increase in reserves for the near future, the stand which the board has taken is enhanced in importance, and the result points to greater recovery of existing and yet undeveloped oil and gas reserves.

Notable in the new movement is the accord among operators, and between them and the conservation body. At the hearing in El Dorado it was generally agreed that greater restriction of production, in order to approach critical production rates, was to the best interests of all operators. The board, in placing new orders in effect, has announced itself open to consideration of any claims of discrimination or hardship presented in a public hearing.

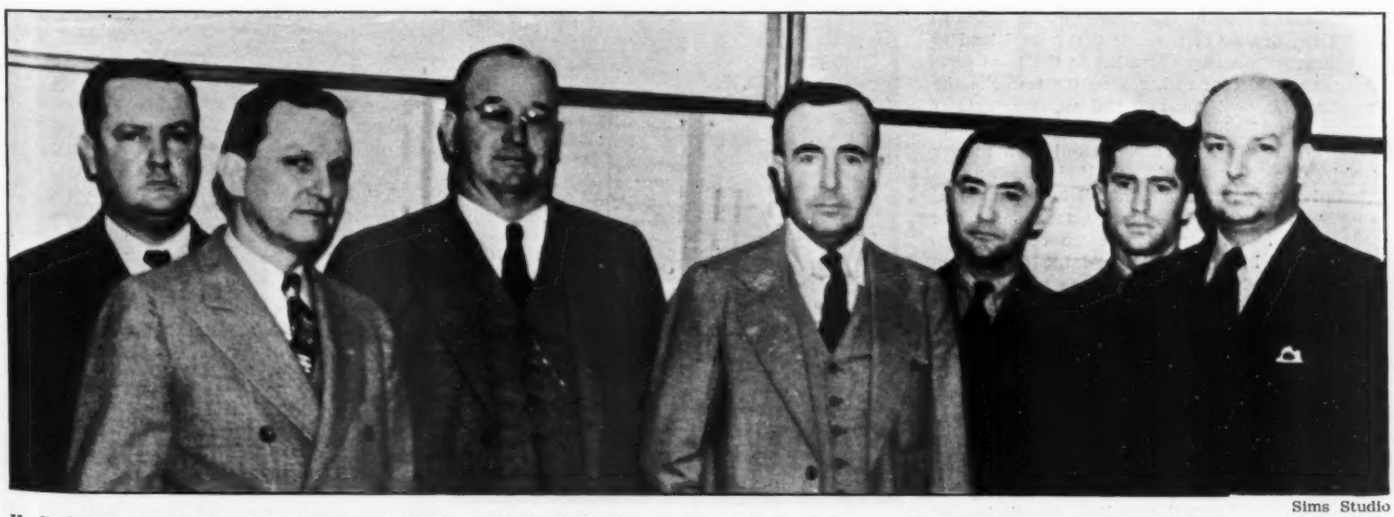
Since the discovery of the Miller County sector of Rodessa last year, the field has been developed and produced with little restriction. Daily production reached a high of 15,109 bbls. late in October, representing an average daily per well production of 503 bbls. Since that time production has dropped consistently along with the spent reservoir pressure, and the current production averages 8,000 bbls. daily or a little over 100 bbls. per well.

The greatest drop in bottom-hole pressures has been felt in the Upper Caddo Levee Board lime, which is productive in the east section of the field. Production has so declined in that area wells are unable to make their former allowable, and new development has all but ceased.

The west section of the field, which produces from the Lower Caddoo Levee Board lime, still contains virgin territory with high reservoir pressure and good production. The two horizons are apparently not connected. The suggestion that the field be divided into the two parts for proration was not considered feasible in view of the time and cost required, and the uncertaintly of future production in the west section.

Instead the board followed the suggestion calling for revision of methods for determining oil allowable, and a separate ruling governing gas production. Accordingly, in the order dated April 21, the field oil allocation is placed on a fifty-fifty basis. Half of the total is divided among the individual wells according to their acreage in comparison with the total acreage in the field. The remaining half is allocated on the basis of number of wells in the field. A limit of 200 bbls. is placed on the production of any one well. In addition, the adjustment in production according to gas-oil ratio is based on 3,500 feet instead of 5,000 feet as formerly. In view of these restrictions, few wells will approach 200 bbls. per day, and many will fall

(Continued on Page 39)



Sims Studio

H. C. Skidmore, Gerhig Co.; Walter A. Helms, Ed Hollyfield, members of the Arkansas Board of Conservation; O. C. Bailey, chairman; Robert Short, board member; C. H. Thigpen, petroleum engineer and A. M. Crowell, chief conservation agent

Economic Problems of Refining Discussed at Hot Springs

By W. T. ZIEGENHAIN

HOT SPRINGS, Ark., Apr. 27.—"The public is the judge of motor fuel quality," the twenty-sixth annual convention of the Western Petroleum Refiners Association was told, while meeting here during the past three days. But, unfortunately for the refiner, the public has placed too much blame upon the gasoline when uneconomical performance occurs and not enough

W. L. Lesh, Kanotex Refining Co., and G. E. Everett of W.P.R.A.

on the car. The refiner is forced to tailor his gasoline to fit the fuel system of the most poorly designed fuel system, it was pointed out, and cars that could use much more volatile fuels are being penalized. Thus when a motorist meets with improper car operation the refiner is too often blamed rather than the operating characteristics of motor vehicle fuel system.

Refiners attending the meetings were urged to make the quality of gasoline that would lead to the most satisfactory operation in the most carefully designed cars rather than try to make the gasoline that will run any and all cars. This of course, would obligate the car manufacturer to build a car to fit the fuel instead of a refiner making the fuel to fit the car. Under such a program, it was pointed out, the oil industry would supply motor fuels of higher octane value and this could be done without extra cost by conserving the higher fractions of the crude. The problem ahead is to convince the motor manufacturer that he should provide a vapor-tight "plumbing system."

This program calls for cooperative efforts extending over a long period of time but the justification of this was rather completely outlined in the paper presented by W. W. Scheumann of Cities Service Oil Co., in which he outlined the economic aspects of a conclusive series of actual road tests conducted by the W.P.R.A. in cooperation with the Natural Gasoline Association of America. (See page 71 of this issue.) This subject prompted much discussion in and away from the technical sessions which were presided over by L. D. Mann of Cities Service Oil Co. and C. L. Henderson of Vickers Petroleum Co.

Interesting discussions also followed the papers of Frank Praeger of the Alcorn Combustion Co. on the "True Vapor Phase"; that of Dr. E. R. Smoley of the Lummus Co. on "Economics of Combustion Cracking Versus Separate Topping and Cracking," and that of L. D. Betz on "Water Treatment."

While the economics of the more detailed operating problems were under discussion, C. M. Boggs, of Kanotex Refining Co., and president of the association, sought to present a broader view of the Mid-Continent refiners' economic problems and in his review of the work of the association during the past year, said:

"At this time last year the refining industry in the Mid-Continent field had closed a year of slight prosperity, the second one out of a long line of years of financial losses to both large and small concerns. In addition, the small refiners had suffered the loss of many of their outlets, consumers who had been on their books for a long period of years. It is true the year 1936, with its improved conditions did not restore these outlets but it did, in a measure, help make back some of the cash losses sustained by the industry in previous years. When I say that it made back some of the losses I am speaking literally, for a survey of the Mid-Continent refining industry's revenues for the two years, 1935 and 1936, show that the industry failed by many millions of dollars to equal the losses in the year 1934 alone.

"In 1937 there was an improvement. Some of this improvement was due to the betterment of

Rex H. Winget, Cushing Refining & Gasoline Co.

conditions generally throughout the country. More people were employed, wages were higher, more automobiles were purchased, and more gas and oil consumed. In addition, the interrefinery buying which had been mandatory under the code was continuing. It is true that many of the major oil companies and their executives had been indicted for this type of buying, but, firm in the belief that they were doing what they thought was not only legal but was also the oft-expressed desire of the administration, the buying was going on and every Mid-Continent refiner believed that 1937 would be a good year. This belief was dispelled before many months had elapsed after our meeting.

R. W. McDowell, Mid-Conti Petroleum Corp.

"The first blow fell when the service-station price was cut one-half cent at the very start of the big consuming season, and the second jolt came with the cessation of interrefinery buying. The conspiracy trial began at Madison in October, 1937. Then came a depression more devastating even than the terrible one of 1933 and 1934. Perhaps the refiners' loss in 1937 was not as great, when expressed in terms of money, as in 1934, but when the outlook for the refining business of the future is considered, then the present depressed condition of the industry in the Mid-Continent field must be considered as the worst in refining history. . . .

"The tragedy of the whole business is that the small refiner is in the position of an innocent bystander. Caught between a price for crude not comparable with the price he receives for his finished product on one hand and unable to meet the competition of his larger competitor on the other hand, and with most of his business lost to him, and with even hope gone it is little wonder that he gazes into the future with nothing but despair.

"He does not even have the hope that his government will help him. On the contrary he fears the administration and rightly so for he realizes that for what he was commanded to do by this same administration under the code he was named a co-conspirator in an alleged violation of the laws of his country. He honestly believes the reason he was not tried with the larger companies was not because the government had any interest in his welfare, but rather it was because public opinion might condemn a government

Industry Meeting

which would punish a small man for endeavoring to protect his business existence. He remembers of reading the fine letters of commendation from high government officials which extol the efforts of those who carried out the administration's orders and now knows that like a sales quotation they should have read 'subject to change without notice.'

"The small refiners know that the administration under the code required that larger companies restrict their production and buy surplus gasoline from small refiners. They know the code provided for a fine of $500 each day the code was not observed. They know only too well that the large companies who obeyed the code were convicted therefor, and they know the small refiner himself was named as co-conspirator. It is little wonder, therefore, when a responsible officer of his government questions why the small refiner should have any place in business and why he should not be eliminated, that he is dubious of receiving any help at the hands of his government.

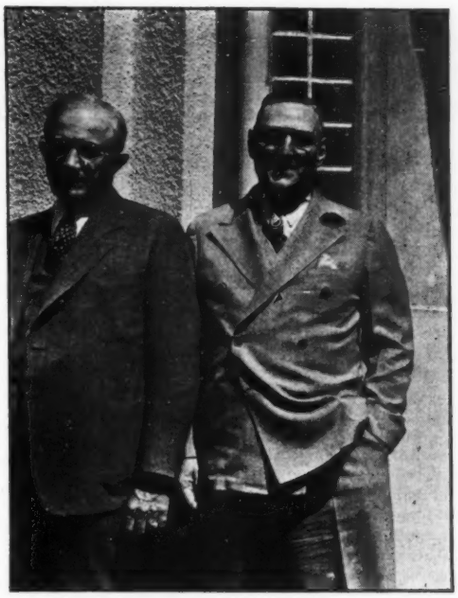
"As president of this association which comprises many small members and several large members, I have been dwelling at some length on the plight of the small refiner. I know there will be no criticism from anyone for so doing. I believe there is not a member of the Western Petroleum Refiners Association, be he ever so large, who is desirous of seeing the small refiner pass out of existence. It is true that pride of leadership and the loss of a few accounts by several large companies to other large refiners started the small refiner on the downgrade last summer. It is also true that the desire for greatness—synonymous with gallonage—helps contribute to the small refiner's delinquencies, but also it is true that for the past seven years the purchasing of needed gasoline by the large refiner from the small refiner, when previously large companies had purchased from other large companies, was a contributing factor in the preservation of the small refiners in those lean years following the birth of the East Texas field. I am sure, that, were there no fear of further prosecution these same large companies would again buy their needs from the small refiner, which purchasing I consider necessary if he is to be preserved. . . .

"For some time past the small refiners in the Mid-Continent have been considering the formation of a sales agency, patterned after that of Appalachian Coals, Inc., which, in 1933 was approved by the Supreme Court. Several meetings of these small refiners have been held to determine if such a sales agency is workable. Another meeting was held last Sunday in this hotel, and while no definite conclusion was reached, there is still a possibility that one will be organized. The sales agency may be the answer to the small refiners' future. I call on the small refiners to resolve individually and collectively to use every lawful means to preserve their business. . . ."

Since President Boggs thus emphasized the importance of guiding the marketing branch of the Mid-Continent refining industry it was appropriate that the convention hear the expert advice of James R. Adams of MacManus, John & Adams, Inc., who spoke on "Emphasis on Marketing." Confidence in the future of the oil business and in general business conditions was portrayed by B. C. Forbes, the well-known economist who said, "America's brightest period of development is ahead and not in the past."

Serving as a background for these remarks was the discussion of "Business-Government-Public: Their Relations, Objective and Responsibilities," by Glen Griswold of the McGraw-Hill Publishing Co.; the discussion of "The Law and the Profits," by H. T. Harrison, attorney of Little Rock, Ark., and "This Day Our Daily Job," by Whiting Williams, industrial relations counsel of Cleveland, Ohio. These were presented at meetings presided over by H. T. Ashton of Socony-Vacuum Oil Co., Inc., and R. B. Jones of Panhandle Refining Co.

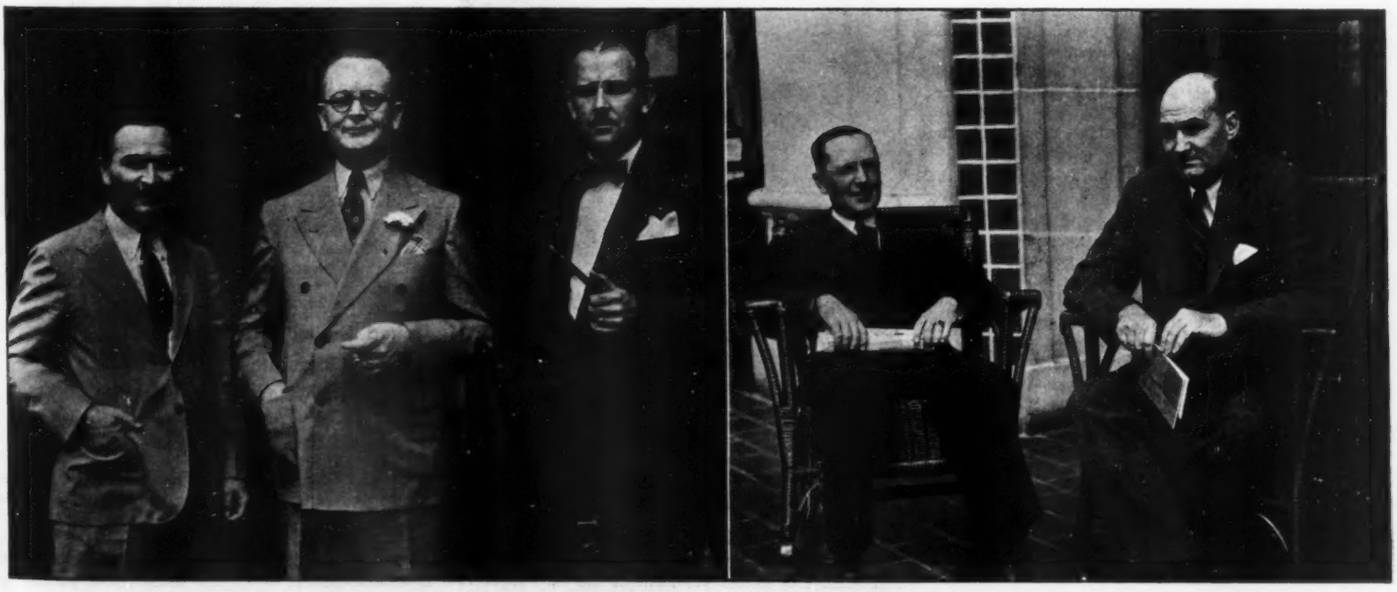
In a series of committee meetings held during the convention definite progress was reported in correlating the efforts of operators to have insurance rates adjusted downward in view of the declining losses that are reported on cracking equipment. It was shown that regular inspection and improvement in the operation of cracking equipment within the Mid-Continent area have lessened fire losses, and refiners who practice this inspection deserve correspondingly lower rates.



C. M. Boggs, Kanotex Refining Co., and president of W.P.R.A., and A. V. Bourque, secretary of the association

Annual Illinois Mineral Industries Conference

The sixth annual Illinois Mineral Industries Conference will be held next fall on Friday and Saturday, September 30 and October 1, at the University of Illinois, Urbana. This conference is sponsored by the Illinois State Geological Survey, the Engineering Experiment Station and the Illinois Mineral Industries Committee. Preliminary plans call for two major symposia, one on the future energy minerals and the other on new frontiers for the use of industrial minerals. A complete exhibit of the research work which is being done at Urbana is being planned for the information of the mineral industries of the state.



T. E. Ronan, Ethyl Gasoline Corp. — *Ray E. Miller, Hanlon-Buchanan, Inc.* — *P. O. Hardwick, Atlas Pipe Line Corp.* — *Frank H. Dunn, Wilcox Oil & Gas Co.* — *L. D. Mann, Cities Service Oil Co. (Del.)*

Bureau of Mines Estimate for May Less Than April and Year Ago

WASHINGTON, D. C., Apr. 25.—The Bureau of Mines estimates a daily average supply of 3,318,100 bbls. of domestic crude necessary to meet market demands in May.

The estimate was 43,600 bbls. less than April and 259,700 bbls. less than actual daily production a year ago.

Normally demand in May is substantially higher than in March and April but the bureau said this year the situation will be modified by record-breaking gasoline stocks, the failure of gasoline demand to show more than a slight increase over 1937, and the decline in demand for fuel oil, which was about 8 per cent less than last year.

Crude oil production for the four weeks, March 12 to April 9, averaged 3,408,000 bbls. daily. Crude oil stocks, during the same period, increased 1,990,000 bbls., of which 198,000 bbls. was in foreign stocks.

The bureau estimated the domestic motor fuel demand next month at 46,800,000 bbls., 3 per cent higher than the actual demand a year ago. Motor fuel exports were estimated at 3,100,000 bbls., or 200,000 bbls. less than the April estimate and 223,000 bbls. below exports for May, 1937.

Stocks of gasoline on February 28 amounted to 92,280,000 bbls., and 93,900,000 bbls. on March 31. During the first two weeks of April stocks declined 900,000 bbls., compared with the bureau's advance estimate of 2,500,000 bbls. for the month. The bureau estimates finished gasoline stocks will decline 3,350,000 bbls. in May. Crude runs to stills from March 19 to April 16 averaged 3,120,000 bbls. daily.

Benzol and direct sales and losses of natural gasoline were estimated at 45,500,000 bbls.

Natural gasoline consumption at refineries in May was estimated at 5.8 per cent of the total gasoline required, or 2,640,000 bbls. The yield of straightrun and cracked gasoline was estimated as 44.3 per cent, compared with 44.2 per cent for April.

The bureau estimated foreign crude runs to stills at 2,100,000 bbls., the same as estimated in April.

The bureau's estimated daily average crude oil demand by states in barrels:

	Forecast	
	April 19, 1938	May, 1938
Texas	1,329,800	1,322,500
California	698,700	667,800
Oklahoma	526,500	510,300
Louisiana	239,800	243,200
Kansas	173,000	168,700
New Mexico	106,000	103,900
Michigan	51,400	52,600
Pennsylvania	50,300	51,400
Wyoming	46,600	47,400
Arkansas	40,000	44,500
Illinois	34,700	39,700
New York	13,700	14,200
Kentucky	13,400	13,900
Montana	12,700	12,600
West Virginia	9,500	10,000
Ohio	8,800	8,300
Colorado	4,600	4,800
Indiana	2,200	2,300
Total	3,361,700	3,318,100

Oklahoma Allowable Remains At 475,000 Barrels to May 5

OKLAHOMA CITY, Okla., Apr. 26.—Allowable production of Oklahoma crude oil will remain at 475,000 bbls. daily, pending a meeting of purchasers not later than May 5, as recommended to the corporation commission by W. J. Armstrong, chief conservation officer, and approved by the commission. This was decided at a meeting of producers and purchasers with proration officials here Monday. Producers will confer at Tulsa May 3 or 4 to determine May allowable recommendation.

The May market demand for Oklahoma was estimated at 510,300 bbls. daily by the Bureau of Mines, a reduction of 16,200 bbls. from the April estimate, but still 35,000 bbls. daily above the April allowable.

Another conference between proration officials and purchasers and engineers will be held May 5, in an effort to agree on a purchasing program and ratable takings in the various pools so that the allowable will not have to be reduced below 475,000 bbls. At the conclusion of that meeting a recommendation covering allowable production for the remainder of the month, probably retroactive to May 1, will be submitted to the commission.

The conference was harmonious, expected fireworks failing to develop. Both producers and purchasers expressed their willingness to cooperate in an effort to save the state's market.

The discussion revolved around the effect of reductions in purchases made by the Carter, Shell, Rock Island and Barnsdall companies. A majority of the companies represented said they would be unable to absorb any of the excess resulting from the pipe line proration of the three companies, but two or three companies indicated they might increase their purchases slightly.

Representatives of some of the buyers suggested that the May allowable be reduced to 450,000 bbls. daily, with Carter Oil Co. officials expressing the belief that a cut to 400,000 or 425,000 bbls. daily would be necessary to relieve the condition necessitating their company reduction of 20 per cent.

Producers generally opposed such drastic reduction, some insisting if the allowable should be reduced that the purchasers guarantee they would take 100 per cent runs from all leases.

Despite individual differences, both purchasers and producers agreed they should cooperate to retain Oklahoma's share of the national oil market and it was with unanimous consent they approved Armstrong's suggestion the allowable remain unchanged until the buyers could work out a ratable taking program.

Lloyd Williamson Elected President Of Oil Producers Agency

LOS ANGELES, Apr. 25.—Lloyd Williamson, vice president and general manager, California Star Oil Co., one of the original oil producing companies in California, was elected president of the Oil Producers Agency of California at the annual election meeting of the board of directors. Mr. Williamson has been in the California oil business since 1910, and with California Star Oil Co. for 24 years, having started as a tool dresser in 1914.

LLOYD WILLIAMSON

The Oil Producers Agency is an organization of more than 300 California independent producers. The directors also elected H. A. Bardeen, Bardeen Oil Co.; Angus Crites, Anchor Oil Co.; Robert Garrison, Macroo Oil Co.; A. S. Johnston, A. S. Johnston Drilling Corp.; W. J. Schultz, Crescent Petroleum Co., and Roy W. Young, Young Petroleum Co., as vice presidents.

A new secretary-treasurer and assistant secretary-treasurer were also elected, former being Melville Dozier, Jr., Texas Holding Co., and the latter W. A. Russell, Seaboard Oil Co.

Rush M. Blodget, executive vice president since the agency's inception, was reelected. Eleven directors were reelected for a three-year term: A. E. Bell, A. E. Bell Corp.; Rush M. Blodget, Oil Producers Agency; J. J. Doyle, Doyle Petroleum Co.; W. H. Geis, Arrowhead Oil Co.; R. E. Havenstrite, California Western Oil Co.; L. C. Kelly, Thos. Kelly & Sons, Inc; C. A. LaFever, Huntington Signal Oil Co.; A. C. Mattei, Honolulu Oil Corp.; W. H. Morgan, R. R. Bush Oil Co.; W. J. Schultz, Crescent Petroleum Co.; Lawrence Vander Leck, Fullerton Oil Co.

Jack J. Doyle, retiring president, received a token of appreciation of his services from R. A. Broomfield, president of Barnsdall Oil Co., on behalf of the board of directors.

Texas Allowable Reduced By Sunday Shutdowns

AUSTIN, Tex., Apr. 25.—The railroad commission today set the state allowable for May at 1,307,914 bbls. daily, a reduction of 10,523 bbls. from April, and ordered statewide Sunday shutdowns continued another month.

The allowable for every district except West Texas was raised, the reduction being due mainly to the fact May has five Sundays.

West Texas, which had a daily allowable of 194,060 bbls. April 1 and 200,214 bbls. April 18, not counting Sunday shutdowns, was ordered cut back to 189,479 bbls. The demand for oil from some fields in that district has decreased.

Bennett was reduced from 2,021 bbls. daily to 800; Duggan, from 400 to 200; Foster, from 4,701 to 4,181; Fuhrman, from 1,413 to 962; Harper, from 5,384 to 2,590; Slaughter, from 400 to 200; South Ward, from 14,140 to 13,000, and Wasson from 4,057 to 2,518. Some West Texas fields got slight increases due to completions.

Allowables by districts April 1, April 18 and May 1, not considering the Sunday closings, follow:

East Texas, 501,982, 504,062 and 504,835; Panhandle, 77,109, 77,497 and 77,679; North Texas, including K.M.A., 69,652, 76,487 and 78,613; West Central, 73,786, 75,786 and 76,038; East Central, 110,547, 112,416 and 115,816; Southwest Texas, 261,886, 271,018 and 270,404; Gulf Coast, 221,315, 228,877 and 230,404.

Because of completions K.M.A. was increased more than 65 per cent. May was set at 16,223 bbls. daily, compared with 9,789 April 1 and 14,737 April 16.

The commission indicated Sunday shutdowns would not be modified or lifted until July 1.

"In spite of drastic curtailment," said Chairman C. V. Terrell, "crude oil storage has increased 3,710,000 bbls. as of April 2 over the figure for March 5. Gasoline stocks on April 16 were 92,001,000 bbls., a decrease of 1,191,000 bbls. from March 19, which is encouraging."

The Bureau of Mines estimated demand for Texas oil next month at 1,322,500 bbls. per day.

United States Supreme Court Upholds Regulatory Orders

WASHINGTON, D. C., Apr. 25.—The Supreme Court upheld Interstate Commerce Commission orders prohibiting railroads from making allowances to certain petroleum refiners and paper manufacturers for spotting freight cars within their plant yards. The orders were contested by Pan American Petroleum Corp., Humble Oil & Refining Co., and others.

The court also upheld the power of Arkansas Department of Public Utilities to require Arkansas-Louisiana Gas Co. to file rate schedules on natural gas produced in Louisiana and sold in Arkansas to Camden Gas Co. and 40 industrial users having their own tap lines.

Established 1910 by PATRICK C. BOYLE

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Starting Right

The year has progressed far enough so the industry can have a fairly accurate idea of what the approximate demand for its products will be during the summer months.

The state conservation bodies, the Interstate Oil Compact Commission, the Bureau of Mines, and everyone who has anything to do with projecting future requirements will have to take into consideration the fact that the industry has substantially more stocks on hand than it had a year ago.

This, in effect, will mean that if these stocks are to be brought down to a healthy basis, the industry during the next few months cannot expect the gain in demand which it otherwise would have had.

This is particularly true in the case of gasoline, of which stocks at this time are 9,000,000 barrels greater than they were a year ago; and gasoline stocks a year ago were too large for that particular period.

While the domestic demand for gasoline is running ahead of that of last year and will no doubt continue to do so, with a much larger gain in exports, it is probable that refinery operations and crude oil production will have to be kept slightly below the levels of last year.

It is known that some of the large refining organizations and some of the smaller are projecting their summer operations on a basis that will provide for not only a normal seasonal decline in gasoline inventories but also for liquidation of these excessive stocks.

These 9,000,000 barrels of gasoline, translated into terms of crude runs to stills, mean approximately 20,000,000 barrels of crude which, spread over four months starting May 1, would require that crude runs to stills be 170,000 barrels a day less.

Two-thirds of the 30,000,000 barrels of gas oil and fuel oil surplus is due to the reported accumulation in California in recent months, but the fact remains that the rest of the industry has as much of these products on hand as it will require next fall.

These refiners, as a group, must reconsider their plant operations during the next few months, not only to reduce excessive gasoline inventories, but also to prevent further accumulation of the heavy oils, which will become a real burden to the industry if they are not kept within reasonable limits.

These facts are just as significant to the producer of oil as they are to refiners. They mean that, while some increase in production will be justified during the summer months, there will be no justification for a large increase such as was seen last year.

It will be futile to blame this situation upon the state proration bodies, the Bureau of Mines or anyone else. It is simply the penalty which the industry must pay for excessive production in the latter part of the past year.

The immediate responsibility resting upon producers and refiners alike is to do something about it and take the necessary corrective measures to restore balance between supply and demand.

This responsibility cannot longer be shifted or evaded. Ignoring it brought the industry to its present condition.

The effects of overproduction have been demonstrated so often that everyone should know what they must be and what must be done to correct them.

The unexpected gain in consumption last year is not likely to be repeated in view of general conditions. A normal increase over 1937, however, does seem assured and if steps are taken promptly to reduce the surplus inventories now overhanging the market the industry should have a genuinely prosperous year.

McClosky Sand Yields Big Well in Western Kentucky Field

OWENSBORO, Ky., Apr. 25.—The Coal Basin underlying the surface of Central and southeastern Illinois, southwestern Indiana and western Kentucky has yielded its first oil well in this state, and it is a good one and promises to be better.

Nine miles west of Owensboro, in a low rolling country on the west side of the Green River, near the village of Hebbardsville, in Henderson County, Hoosier Drilling Co. No. 1 Blackwell got the top of the McClosky pay at 1,874 feet and began flowing over the mast head. The pay was struck late Friday, and as no preparations had been made for handling production, there was great confusion. Tanks were ordered from Owensboro and a casinghead was found and installed with a wooden plug in the top. Two flow lines were connected, and the well began flowing into 100-bbl. tanks at the rate of 50 bbls. per hour. Seventeen 100-bbl. tanks were set up and filled. Before the tanks could be placed, oil had been flowing on the ground, covering 8 or 10 acres through the nearby woods.

As the pay was penetrated only 2 feet, the well, when drilled in, is expected to produce a greater volume of oil than the large McClosky wells in Clay and Noble counties in Illinois.

The oil produced as a result of the discovery of McClosky pay can be flowed into barges in the nearby Green River, a tributary of the Ohio River, and marketed without pipe line, and it is possible that this will be done.

E. L. Newton heads the Hoosier Drilling Co., which has its headquarters in Owensboro.

The Carter Oil Co. is the largest owner of close-in acreage, having purchased 3,500 acres out of the Hoosier Drilling Co.'s block. The Magnolia Petroleum Co. and the Sun Oil Co. are also acreage owners in the vicinity of the well.

Drilling Crews Have Returned To Wildcat in Alaska

LOS ANGELES, Calif., Apr. 25.—Drilling crews of the Iniskin Drilling Co. have returned to their company's wildcat near Cook Inlet on the Alaskan Peninsula to resume drilling after the winter shutdown. Late last fall the drilling had to be discontinued at 5,070 feet when the crews ran out of drilling mud. Since strong shows of gas had been encountered, they would have preferred to drill deeper before the winter shutdown if it had been possible to ship in more mud before the inlet became ice bound. However, mud had to be imported from California, so it was necessary to wait for the spring thaw.

This year it is believed sufficient mud is being taken to the location to complete the test regardless of whatever difficulties may arise. A freighter left Seattle, Wash., on April 15 carrying 100 tons of Baroid for weighting the mud in drilling through the gas horizon, and 10 tons of Aquagel for maintaining viscosity. It is expected drilling will be resumed by May 15.

To save fuel oil, which must be freighted to the inlet and hauled overland 5 miles to the location, diesel engines are to be used this year for pumping the drilling mud instead of steam. A new large-sized power pump is on its way to the location. It is a Gardner-Denver 7¾-inch by 16-inch twin which will be driven by two 165-horsepower Caterpillar diesel engines. A third Caterpillar engine, in the 125-horsepower size, is also on its way to the location.

The freighter carrying the mud and pumping equipment is loaded with enough groceries, meats, and other supplies to last the entire season. The drilling crews, together with a doctor and two cooks, left for the location on April 16 from Seattle aboard the "Alusian."

The party includes Homer Havenstrite, drilling superintendent; E. E. Whirter and F. M. Anderson, the drillers; J. W. Allen, Sig Benson, John F. Woodman, M. E. Miller, George Kempert, Fred Munson and William G. Ahrens, floor man; Charles Swanson, carpenter; W. K. Wyrick, welder; and W. H. O'Dell, tractor driver. Dr. J. E. Slate is in charge of medicine at the northerly oil camp. The party arrived at the destination on April 24 to start preparations for drilling.

Throughout the winter a radio operator and a caretaker remained on the ice-bound property. These men were Marcel Stearm and Howard Brown. By means of the transmitting equipment on the property, and the U. S. Signal Corps, they were able to keep their employers in Los Angeles informed throughout the winter as to the state of the ice and weather conditions. This information enabled the officials to determine the most suitable time for resuming operations.

Russell E. Havenstrite, president of the firm, will leave soon for Alaska to be at the location when drilling starts in May. (For additional information on this interesting Alaskan project consult The Oil and Gas Journal, June 10, 1937, page 29.)

Obituaries

WILLIAM BEDDIE ROBERTSON, 54, an employe of Standard-Vacuum Oil Co. in Shanghai, China, died of natural causes last week.

ROBERT G. STONER, formerly with Standard Oil Co. of Louisiana, died aboard ship in the Mediterranean recently en route from the Dutch East Indies to New York. He was superintendent of production in Sumatra for the Standard Oil interests.

WILLIS H. POWERS, 78, retired banker and oil producer, of Bradford, Pa., died on April 15 at Miami, Fla. Mr. Powers had been a member of the Bradford Oil Exchange, later becoming cashier of the Commercial National Bank of Bradford, and its president from 1905 until 1935, when he retired.

JAMES BRODIE, 65, who in 1914 brought in the discovery well of the Edmonton Industrial Association in the Viking field of East Central Alberta, died at Nelson, British Columbia, recently.

Panhandle Chapter Planning Safety Meeting at Pampa

PAMPA, Tex.—The Panhandle chapter of the American Petroleum Institute will hold a safety meeting with the tentative date as May 10.

A committee composed of Walter Biery, Sinclair Prairie Oil Co., chairman; D. J. Gribbon, Texas Co.; D. A. Powell, Southern Petroleum Exploration Co., and Harry E. Hoare, Pampa Daily News, was named by Chairman Mathews to make arrangements.

Every oil company in the Panhandle field will be asked to have first aid teams and as many employes as possible at the meeting.

Petroleum Tax Representatives To Meet at Wichita, Kans.

The next dinner meeting of the petroleum industry tax representatives, Kansas-Oklahoma area, Mid-Continent Oil and Gas Association, will be held at 6:30 p.m., Friday, April 29, at the Allis Hotel in Wichita, Kans.

The tax dinner committee is composed of L. W. Bennett, chairman, Sunray Oil Co., Tulsa; Leon F. Booth, Selby Oil & Gas Co., Tulsa; George H. Bowen, Sun Oil Co., Tulsa; Paul R. Bishop, Lauck & Moncrief, Wichita, and D. W. Watson, Yankey-Stearns Co., Wichita. The program for the meeting will be in charge of the Kansas members. Mr. Bishop will act as chairman. Speakers include Stanley Spurrier, accountant, of Wichita; O. A. Garnett, tax commissioner, Wichita Chamber of Commerce, and George H. Bowen, Sun Oil Co.

Hearing for K.M.A. Field At Wichita Falls, May 2

AUSTIN, Tex.—A special railroad commission hearing on the K.M.A. field will be held at Wichita Falls May 2 to consider well spacing, the proration formula and the casing program.

"Since testimony has been presented," the order said, "that the fluid level in the K.M.A. field is receding in many cases resulting in a higher casinghead pressure, evidence will be heard on whether rule 3, which requires christmastree fittings of at least 1,000 pounds working pressure, should be amended."

The commission will determine whether Blackwell Oil & Gas Co.'s well, approximately 10 miles southeast of the K.M.A. field proper, should be set up as a separate proration unit.

A hearing on special rules for proper conservation in the 4,300-foot zone of the Luby field, Nueces County, will be held May 2. A special hearing on the Hamman field, Matagorda County, also was set for that date at Austin and one on the Slaughter field, Hockley County, for the following day.

Tulsa S.A.E. Group to Meet With O. U. Student Branch

The meeting of the Tulsa S.A.E. Group, April 29, is to be a joint meeting with the University of Oklahoma S.A.E. student branch at the university, Norman. The university is holding its annual engineering open house and has invited the American Society of Mechanical Engineers and the Regional Group of the Oklahoma Professional Engineers as guests. The program:

Visit engineering laboratories prior to dinner.

Dinner at Student Union Building at 7:00 p. m.

Presentation of S.A.E. Student Branch Charter.

Comments by representatives of A.S.M.E. and Oklahoma Professional Engineers.

Paper: "Volatility and Performance Characteristics of Gasoline," by D. E. Hamilton.

Gerard at Commencement of Montana School of Mines

James W. Gerard, war-time ambassador to Germany, will be the speaker at the thirty-sixth annual commencement at Montana School of Mines, on June 3, it is announced by President Francis A. Thomson.

THE MARKETS*

CRUDE OIL: *Action of the Texas Railroad Commission in fixing the state allowables for May below the present one is indicative of a continued uneasiness in the crude oil market. Possibility of an important field opening up in northwest Kentucky is not reassuring to Mid-Continent operators. No changes in posted prices.*

REFINERY: *Nervousness over possibility of reductions in crude prices, along with the necessity of removing overheavy inventories, is still an unfavorable influence; but gradual pickup in consumption and a curb on runs to stills are hoped to bring about a firmer price structure. The lubricant division shows little improvement, notwithstanding curtailed output.*

TANK-WAGON AND POSTED DEALER: *Minor local price adjustments made by Standard of Indiana, Standard of Louisiana, and Continental.*

FINANCIAL: *Oil shares participated in the churning which affected the general market, the week closing with a rising trend. Average of 30 stocks for week ending April 23: High, 28.33; low, 26.47; close, 27.75. Week ending April 16: High, 28.07; low, 25.80; close, 27.98.*

Detailed information in Market Section.

California Producers Warned at A.P.I. District Meeting

By L. P. STOCKMAN

LOS ANGELES, Calif., Apr. 23.—Papers on pressure drilling, cementing, pumping and production problems, safety, and vocational training occupied attention of the more than 1,000 members at the spring meeting of the Pacific Coast district of the American Petroleum Institute Division of Production held at the Biltmore Hotel.

F. B. Carter, petroleum engineer, General Petroleum Corp.

E. K. Parks, of Standard Oil Co., presided at the morning session at which four papers were presented, and D. S. Caldwell presided at the afternoon session when three additional papers were presented. L. L. Aubert presided at the business session, and upon conclusion of the election turned the gavel over to Howard C. Pyle, Union Oil Co., the new chairman.

At the evening session the 1,000 or more present heard R. K. Davies, vice president of Standard Oil Co., discuss "Dollars and Sense." After ridiculing the indicated demand of 693,000 bbls. daily estimated by the U. S. Bureau of Mines and adopted by the Central Committee without mentioning any names, Mr. Davies wound up with a strong admonition that supply and demand must be immediately brought into balance or producers and refiners must expect chaotic conditions. He left no doubt what he meant and emphasized the situation by calling attention to the fact that about 213,000 bbls. per day went into storage during February. He specifically stated that on the basis of additions to stocks during the first three months of 1938 there would be a total accumulation of 50,000,000 bbls. of crude or its products during the present year if conditions continued, and concluded by saying no group of marketers could or would cope with such a threatening situation.

Cannot Ignore Market

After having jokingly drawn attention to the superficial differences between producers and marketers, Mr. Davies said:

"As a matter of fact, in every real sense, we are both producers. It is true that you produce the oil, but it is no less true that the marketers produce the dollars which make that production possible, and just as it is impossible for the producers to extract from an oil field more oil than is contained in the ground, so likewise it is impossible for us marketers to return to you more dollars than can be extracted from the available markets.

"Producers can no longer afford to ignore the product market. Where once this market was assumed to be virtually unlimited, it is now known to have no appetite for all the oil that could be immediately poured into it. It is no longer possible for either group to attempt to isolate itself from the other without entailing disastrous consequences for both. The actions of both producers and marketers affect the market, and through the market react upon both. An unintelligent handling of the production situation must ultimately destroy the product markets, and hence values for crude; stupid treatment of the marketing situation must have the same final result. Only balance and order in both branches can produce fair return.

AUTHORITY ON ROTARY DRILLING—*J. E. Brantly, president, Drilling and Exploration Co.*

"Just as you must resist the attempt of your offsets to drain the limited barrelage of oil in the reservoir, away from your land, so the marketers must resist the attempts of offsets to drain the limited gallonage of gasoline in the market, away from their stations. Nor does the parallel between the producers and the marketers end here. The marketers know from painful experience that the effort to resist drainage spreads from town to town until it encompasses an entire marketing

(Continued on Page 34)

ARRANGEMENTS AND PROGRAM—*J. W. Schmid, Ralph Marshall and Wendell M. Jones*

R. K. Davies who spoke on "Dollars and Sense"

George O. Suman, superintendent, Joaquin Valley division, Tide Water Associated Oil Company

Natural Gasoline

Hanlon Award to Be Presented At N.G.A.A. Convention

A feature of the coming convention of the Natural Gasoline Association of America, scheduled for May 11-13, at the Hotel Tulsa, Tulsa, Okla., is to be the presentation of the Hanlon Award for distinctive service to the natural gasoline industry. The personal award consists of a solid gold watch and chain, while the recipient's name is engraved on a bronze plaque which hangs permanently in the offices of the association.

The presentation this year will be the second since the inaugural ceremony at the 1937 convention, when R. C. Alden, research director of Phillips Petroleum Co. was honored for his valued contributions to the technical knowledge of the industry. The award is presented for outstanding service in advancing the interests, standards or technical procedure of the natural gasoline industry and recipients are chosen from nominations submitted by oil companies or organizations.

Final selection is made by an award committee consisting of the N.G.A.A. president, J. A. LaFortune, Warren Petroleum Corp.; the secretary-treasurer, William F. Lowe; and the chairman of the Technical Committee, H. W. Harts, Warren Petroleum Corp. They will be assisted by an advisory committee consisting of George P. Bunn, Phillips Petroleum Co.; R. A. Carter, Continental Oil Co.; E. L. Peck, Cities Service Oil Co.; T. R. Goebel, Shell Petroleum Corp.; J. R. Jarvis, Lone Star Gasoline Co., and W. E. Reardon, Coltexo Corp., all members of the board of directors.

Requests for nominations have already been sent out to a large number of companies and organizations and they have been urged to sponsor applications of individuals whom they consider worthy of being honored for their individual achievements. All nominations should be in the hands of the committee not later than May 10.

Though the convention program lacks but a few minor details before being sent to the printer, J. W. Vaiden of Skelly Oil Co., program chairman, indicates that some unusually interesting sessions have been planned. This is particularly true of the technical sessions of Thursday, May 12, when R. C. Alden will give a paper on natural gasoline economics as related to trends in motor fuels. Arch Foster, of National Petroleum News, will discuss changing refining processes and their significance to the natural gasoline industry. In the afternoon of the same day, T. W. Legatski, chairman of the Pawhuska Road Tests Committee, will make the final report of results obtained in this joint program of the N.G.A.A. and the Western Petroleum Refiners Association, and T. A. Boyd, director of the fuel research laboratories, General Motors Corp., Detroit, will present a paper discussing the problems of the automotive engineer in designing to take full advantage of motor fuels now being offered.

Reports of committee activities during the past year are of unusual interest since major standards of the association have been revised and details of these recommendations will be made public for the first time in these reports. The Operating "Kinks" session of Friday promises to be a crowded one if entries in this prize contest continue to come in at their present rate. By special arrangement with the management of the International Petroleum Exposition, the gates of the grounds will be opened to registrants of the convention Friday afternoon, though the exposition does not officially open until the next day.

California Liquefied Gas Sales Higher in 1937

Sales of liquefied petroleum gases produced in California and distributed by California marketers, increased from 23,718,000 gallons in 1936 to 29,910,000 gallons in 1937, according to data collected by the petroleum economics division of the Bureau of Mines, San Francisco. Domestic sales (bottled-gas) and sales for use in internal-combustion engines accounted principally for the 26 per cent increase in total sales, increasing 2,509,000 gallons and 2,747,000 gallons, respectively. Although, quantitatively, domestic sales increased slightly less than internal-combustion-engines fuel sales, the percentage increase of 40.9 per cent was far greater than the 22.3 per cent increase in the latter.

Internal-combustion-engine fuel sales were almost twice as great as domestic sales, the next largest class of demand, and constitute over half the total sales. This situation is peculiar to the Pacific Coast area, as in other sections of the United States such sales are negligible.

Certain sales, formerly reported as butanes, were found actually to be mixtures of propane and butane and in 1937 were reported as "propane-butane." The 1936 data were revised to provide comparability. Exports from the Pacific Coast are relatively unimportant, amounting to only 72,000 gallons in 1936 and 112,000 gallons in 1937. These data do not include liquefied gases used directly by the producer for fuel, polymerization, solvents, dewaxing, blending with gasoline or as raw material in chemical plants which are operated adjacent to and in conjunction with plants producing liquefied gases.

Construction Begun on Plant In the Sandy Point Field

HOUSTON, Tex.—Construction has been started by Del Rey Producing Co. of Houston for a natural gasoline plant in the Sandy Point field, Brazoria County. The plant will have a capacity of 20,000,000 feet of gas daily.

Indian Lease Sale to Be Held at Pawnee Agency

An Indian lease sale will be held at the Pawnee Agency in Pawnee, Okla., at 2 p.m. May 5, when Lem A. Towers, superintendent, will open sealed bids. Twenty-two tracts totaling 6,751.60 acres have been listed for leasing. Six of the tracts are in northeastern Noble County, on a trend from the Burbank pool in Osage County. They are on allotments of Ponca Indians. The other 16 tracts are in Pawnee County, near Pawnee.

Refinery Expansion

Mid-Continent Reopens Lube Plant in Tulsa Refinery

Mid-Continent Petroleum Corp. reopened its lubricating oil department at its refinery in West Tulsa, Okla., and resumed the manufacture of lubricating oils in the plant which has been shut down since March 17.

Crude runs to stills will not be increased, it was stated, until lubricating oil stocks, piled up during the period the plant was closed, are processed.

New Alberta Refinery Nearing Completion

RED DEER, Alberta.—The new refinery of Hydro-Pete Oils, Ltd., is practically ready to operate. The plant, of 250 bbls. capacity, will handle crude trucked from Turner Valley and Montana. R. W. Peacock is plant superintendent.

Colorado Gasoline Consumption At All-Time High in 1937

DENVER, Colo.—The annual report of the Colorado motor fuel tax division shows that gasoline consumption in the state reached an all-time high in 1937 with a total of 222,297,891 gallons, which compares with 205,917,013 in 1936, an increase of 7.9 per cent. Taxes, likewise, reached an all-time high with a total of $8,659,029, an increase of 10.2 per cent over 1936. Colorado refineries supplied 33,305,394 gallons of the total consumption, a slight decrease as compared with 1936, it representing 14.9 per cent of total consumption.

One of the outstanding features of the report is the steady increase in shipments of imported gasoline in tank trunks. In 1937 there were 51,010,655 gallons imported into the state in tank trucks, which compares with 38,867,948 in 1936. In 1937 about 29.8 per cent was moved by tank truck, exclusive of interstate shipments by truck. The latter amounted to 6,050,301 gallons. Refunds to persons and others exempt from the 4-cent tax also has shown steady increases, amounting to $1,200,874 in 1937, against $1,042,474 in 1936 and $809,793 in 1935.

Johnson Oil Refinery Denies Withdrawal of Outlets

DEFIANCE, Ohio.—Melville C. Hill, manager of the station department of Johnson Oil Refining Co., Chicago, denies his firm is withdrawing its outlets in Ohio, Indiana, Illinois and Iowa.

The report arose following announcement of the sale of a bulk plant at Sherwood, Ohio, filling stations at Defiance and Hicksville, and other Defiance County properties of Johnson Oil Co. to John J. Langdon, Sherwood.

Root Petroleum Planning New Reforming Unit

SHREVEPORT, La.—Root Petroleum Co., of Shreveport, La., is completing plans for the addition of a new reforming unit at its El Dorado, Ark., refinery. The contracts for the new work are expected to be closed shortly. Root has been operating for the past several months on Shuler crude, in addition to Smackover and other local crudes.

Natural Gas News

Pennsylvania Petroleum and Natural Gas Conference

The program for the Pennsylvania Petroleum and Natural Gas Conference, May 27 and 28, at State College, Pa., follows:

FRIDAY, MAY 27

Registration, 9:00 a. m. Mineral Industries Building. The laboratories for resident instruction and research in petroleum and natural gas engineering will be open for inspection.

Petroleum session 1:30 p. m.: Sponsored by the Pennsylvania Grade Crude Oil Association and the Bradford District, Pennsylvania Oil Producers' Association.

Chairman: J. C. Martin, executive secretary, Bradford District, Pennsylvania Oil Producers' Association, Bradford Pa.

"Salvaging Oil Field Equipment," by Winston L. Davis, engineer and superintendent, Moore Producing Co., Bolivar, N. Y.

"Applications of Packers for Oil and Gas Drilling and Production," by John Pearsch, sales engineer, Oil Well Supply Co., Oil City, Pa.

"Streamlining Industrial Safety," by E. C. Spring, Pennsylvania Manufacturers Association Casualty Insurance Co., Philadelphia, Pa., with a discussion by H. D. Brown, Jr., Brundred Oil Corp, Oil City, Pa.

"Economics of the Pennsylvania Oil Situation," by John D. Gill, Atlantic Refining Co., Philadelphia, Pa.

7:00 p. m.: Dinner (informal) followed by showing of a motion picture entitled "The Life Story of an Oriskany Sand Gas Well in Northern Pennsylvania," with comments by J. G. Montgomery, United Natural Gas Co., Oil City, Pa.

SATURDAY, MAY 28

Natural gas session, 9:00 a. m.: Sponsored by the Natural Gas Men's Association.

"Tubing of Gas Wells and Flowing Oil Wells Under Pressure," by J. A. Thompson, Otis Eastern Service, Inc., Bradford, Pa.

"Rotary Drilling in the Appalachian Region," by Maurice E. Nicklin, Oil Well Supply Co., Oil City, Pa.

"Progress in Industrial Utilization of Natural Gas," by D. A. Campbell, Eclipse Fuel Engineering Co., Rockford, Ill.

New Mexico's Largest Gas Well Reported in Eunice

New Mexico's largest gas well is reported from the Eunice district, Cities Service Co. No. 3-A Closson, SE sec. 18-22-36. At 3,542 feet the well blew out and is estimated to be making 250,000,000 feet. Drillers are trying to kill the flow by squeezing 2,000 sacks of cement in the formation.

Gas Wastage in Turner Valley Increased by Oil Discovery

CALGARY, Alberta.—At the annual meeting of the Canadian Western Natural Gas, Light, Heat and Power Co., the following officers were elected: President, H. R. Milner; vice president and managing director, E. W. Bowness; general superintendent and chief engineer, P. D. Mellon; secretary-treasurer, H. S. Watts; comptroller, F. A. Smith; directors, A. G. Baalim, F. W. Seymour, Julian Garrett, S. E. Slipper.

Operations of the company for 1937 showed an operating revenue of $2,286,518.31, plus $21,885.40 for gas transported for other companies. Net income carried to earned surplus account was $489,127.83. Fixed assets were shown at $15,181,530.23, with current assets of $1,005,064.70 and current liabilities of $307,978.29.

The directors report showed that on Dec. 31, 1937, some 10,509,729,000 feet of waste Turner Valley gas had been pumped into the Bow Island field, where rock pressure had risen from 248 pounds in August, 1930 to 542 pounds in August, 1937. This gas, together with the Foremost field, is held in reserve for emergencies and peak loads. The stored gas would otherwise have been burned in gas flares.

"Wastage of gas in Turner Valley has been somewhat increased by the discovery of crude oil on the southwest flank of the field," the report stated. "Fortunately the wells supplying the company with gas are in the north end of the field and, for the time being at least, are not affected by this new development." Steps are being taken to conserve the gas area; but owing to decreasing rock pressures gas will have to be compressed next winter for delivery to the company. No matter what policy of conservation is adopted, the cost of producing and delivering gas from Turner Valley will be increasingly expensive, the report adds. Accordingly, search was continued for additional gas reserves. During 1937 the company's geological department, augmented by two outside geologists, did a large amount of work, locating two promising structures within reach of the company's system.

Texas Railroad Commission Gains Point Temporarily

AUSTIN, Tex.—The railroad commission may proceed with its retail gas rate reduction efforts following a decision and gas company concessions in district court.

The actions came after a hearing which grew out of a controversy between gas companies and the commission over rate reduction activities at El Paso and Trenton.

The Community Natural and Texas Cities Gas companies, distributing concerns affiliated with Lone Star Gas Co., promised that for the present and under protest they would permit the commission to examine their properties for original rate-making purposes.

The important question whether the commission can continue to exercise concurrent original jurisdiction with cities in establishment of rates was not decided. It will come up at a later hearing on the same case or a hearing at Dallas if the state supreme court should disagree with the Dallas court of civil appeals and rule that a Dallas district court has jurisdiction.

Nomenclature Committee Names South Texas Fields

HOUSTON, Tex.—Seven new oil fields recently uncovered in South Texas have been named by the oil field nomenclature committee of the South Texas Geological Society:

La Coste field, Bexar County, discovered by the R. W. Fair No. 1 Medina Irrigation Farms, John H. Pickens Survey No. 7.

Ramirena field, Live Oak County, discovered by Nelson No. 1 Bell, A. Parks Survey No. 1, Abstract No. 322.

East Placedo field, Victoria County, discovered by Stanolind No. 1 Henderson and Pickering, E. Benavides Survey.

Cordele field, Jackson County, discovered by Porter No. 1 Foust, Peter White Survey.

Dunlay field, Medina County, discovered by S. F. Ewing No. 1 E. Riff, J. Haby Survey No. 42.

Alice field, Jim Wells County, discovered by Presnall and Mosser No. 1 Bankers Mortgage Co., La Voca grant, J. M. Garcia Survey, Abstract 166.

Los Picachos field, Duval County, discovered by Schimmel No. 5 Hagist, Survey 265.

Texas Retailers Association Denounces Tax Evasion

HOUSTON, Tex.—Resolutions denouncing gasoline tax evasion practices, unfair trade practices and abused trade regimentation were passed at the first annual convention of the Texas Association of Petroleum Retailers in Houston April 19 and 20. J. R. Connery of Houston was reelected president; Fred G. Kenvin, Houston, executive secretary; R. E. H. Gaedke, Fort Worth, vice president, and E. B. Rogers, Houston, regional director of the national organization. The next convention city will be selected at a meeting of the executive board at Austin in July.

Pipe Line Activity

Gulf Refinery Water System About 60 Per Cent Completed

Construction work on the large diameter pipe water system being laid within the refinery yard of the Gulf refinery at Port Arthur, Tex., is about 60 per cent completed, according to progress report received from Williams Bros., Tulsa, which is doing the work. This line will be made up of special steel pipe ranging from 48 to 84 inches in diameter. This pipe is specially coated inside and outside to resist corrosion.

On the firing line

Project Being Considered to Pipe Lloydminster Gas

LLOYDMINSTER, Saskatchewan.—Walter F. Thorn of Moose Jaw, Saskatchewan, recently inspected the Lloydminster gas field, in connection with a project, backed by Eastern Canada and American interests, to pipe natural gas from this field to other communities in the province.

Duval Gasoline Co. System Has Been Completed

The natural gas gathering system for Duval Gasoline Co., Benavides, Tex., has just been completed and will be put into service soon.

Kansas Oil Men's Association To Hold Meetings in May

The Kansas Oil Men's Association will hold four afternoon meetings for early May at which E. J. Kirchner, director of the state department of inspection and registrations and J. W. Lowry, attorney of the department, will talk to oil jobbers. Each meeting is set for 2 o'clock as follows: Colby, May 3; Garden City, May 4; Dodge City, May 5, and Hays, May 6.

NEW CHAIRMAN—*Howard C. Pyle*

Producers Warned

(Continued from Page 31)

area in what we know as a 'price war.' Where your producing fields are linked with pipe lines and common transportation routes, so as to cause all fields ultimately to suffer the effects of overproduction though it start with but one well in one field, in similar fashion marketing fields are linked with highways and railways so as to bring about precisely the same effect.

"Although I have heard producers congratulate themselves over a reduction in production to some 715,000 bbls. per day, I cannot figure out how they find much comfort here when this rate of production, plus clearly indicated additions from new wells, means that some 50,000,000 bbls. of oil and its products would have to be stored this year. I wonder who they think can buy and store any such colossal quantity—particularly when after that we have still more new wells and deep zones at Wilmington, Rio Bravo, Wasco, Rosecrans, Santa Maria, Kettleman, Ten Section, and other places. I suppose it's a detail, but I also wonder what the producers expect the marketers will do with all these and casinghead gasoline that will come with this oil.

"How producers can hold their production within the limits of the market is, however, a producers' problem, but an answer must be forthcoming—quickly—if you would avoid the well-known consequences of failure to balance supply with demand. Whether that answer will make 'Dollars and Sense' does not rest with the marketers.

"Certainly you producers can only realize the long-run worth of your oil, if you gear the rate of your production to consumption in the market. And the rate of consumption is a fact which is not changed by hopes or fears, fancy figures or rising potentials.

"The difficulties connected with bringing production into proper balance with consumption are great, I appreciate. A degree of cooperation is here required which is almost beyond human capacity. In some situations one single operator, it seems, destroys a whole curtailment plan. Human nature being what it is, I wonder if anything short of legal compulsion will meet the problem.

"Too often oil men are wont to console themselves with that 'it can't happen here.' But you all know that it has happened here. If history means anything, it can happen again—and if it happens, the chances are it will take a long time to pick up the pieces; capacity to produce has far outrun capacity to consume, and the future holds no promise of consumption which will absorb a deluge of overproduction quickly enough to make it worth while to store oil in large quantity."

New Officers

New officers of the Pacific section elected at the spring meeting, in addition to Mr. Pyle, include F. R. Schmieder, Shell Oil Co., as vice chairman for Los Angeles Basin; F. W. Hertel, Tide Water Associated Oil Co. at Ventura, as vice chairman for the coastal district; L. R. Bowen, Western Gulf Oil Co. at Bakersfield, vice chairman for San Joaquin Valley; W. G. Corey, Pacific Gear & Tool Works, Los Angeles, as treasurer, and D. S. Kilgour, California Oil & Gas Association, as secretary.

The advisory committee elected consists of W. L. McLaine, General Petroleum Corp.; L. L. Aubert, Bankline Oil Co.; Bruce Barkus, Lane-Wells Co.; A. H. Bell, Continental Oil Co.; R. M. Blodgett, Oil Producers Agency of California; E. C. Bolton, Ohio Oil Co.; L. A. Cranston, Honolulu Oil Corp.; J. F. Dodge, University of Southern California; Roy Fry, Standard Oil Co.; W. H. Geis, Super Asphalt Production Co.; Joseph Jensen, Tide Water Associated Oil Co.; R. L. Keyes, Texas Co.; W. N. Lacey, California Institute of Technology; R. D. Montgomery, Richfield Oil Corp.; R. L. Patterson, United States Geological Survey; F. E. Rehm, Shell Oil Co.; A. C. Rubel, Union Oil Co.; J. W. Schmid, Republic Supply Co.; C. P. Watson, Seaboard Petroleum Corp.; Lloyd Williamson, California Star Oil Co., and Howard C. Pyle, Union Oil Co., ex officio.

RECENT PRESSURE DRILLING *was topic of S. Grinsfelder, Union Oil Co. engineer for Dominguez field*

At the morning meeting J. C. Hoyt, petroleum safety engineer and inspector of the Bureau of Industrial Accident Prevention and Industrial Accident Commission, discussed "Safety in the California Petroleum Industry." He said the survey showed 2 per cent of accidents were unpredictable, 10 per cent were due to physical causes and 88 per cent were accountable to inefficient supervision.

The second paper at the morning session was on vocational training by J. C. Testwick, chief of the Bureau of Trade and Industrial Education, State of California.

"Recent Pressure Drilling at Dominguez" was presented by Sam Grinsfelder and Jan Law of Union Oil Co.

Oil well cement was discussed by Gene Davis of Texas Co. He said "lack of accepted standard specifications for oil well cement make it difficult for the user to use it intelligently and to choose cement suited to the job." A standard of testing and grading was suggested, with tables and charts provided to facilitate calculations.

In the afternoon a paper on "Tentative Equilibrium Constants for Light Hydrocarbons" was offered by B. H. Sage, B. L. Hicks and W. N. Lacey of California Institute of Technology.

"Practical Use of Instruments in Studies of Pumping Wells" was presented by Ned Clark, H. F. Dangberg and Paul L. Kartzke of Shell Oil Co. The authors explained the uses of instruments in the study of pumping well problems, emphasis being placed upon recent developments and practical applications of the polished-rod dynagraph. Examples of typical pump dynagraph and polish-rod cards were illustrated and explained. The uses of instruments adapted to solution of various phases of pumping well problems were classified thus:

"Well performance. Subsurface pressure recorder; fluid level finder; polished-rod dynagraph; pump dynagraph.

"Subsurface equipment performance. Pump dynagraph; polished-rod dynagraph.

"Surface equipment performance. Polished-rod dynagraph.

"Selection of the instrument used will depend upon the information desired, the accuracy necessary, and the cost and economic justification of the test."

"Production Problems in the Wilmington Field" by C. J. Dean of General Petroleum Corp. concluded that experience in the Wilmington field has indicated that fundamentally the control of sand production lies in the regulation of the velocity of fluid entry into the casing. The results of gravel packing to date give promise that this process will be a major factor in the solution of the sand problem."

The business session and banquet concluded the meeting in the Biltmore Bowl.

RETIRING CHAIRMAN—*L. L. Aubert, general manager, Bankline Oil Co.*

Natural Gas One of Montana's Important Assets

By L. G. E. BIGNELL

Montana and adjacent states are fortunate in having a large supply of natural gas available in the gas fields of Montana. This natural resource is found in 14 fields roughly divided into three groups. The northern group consists of Cut Bank, Border, Kevin-Sunburst-Shelby, Sweetgrass Hills, Pondera, Bannatyne, Havre, Boxelder, Bowes and Bowdoin-Saco. In the southern group are Lake Basin, Dry Creek, Elk Basin, which produces oil in Montana but gas in Wyoming, and lies directly upon the state line between those two states, and Hardin. The Baker-Glendive area constitutes the eastern producing section but it is important as it extends through Fallon, Wibaux and Dawson counties and covers about 50,000 acres.

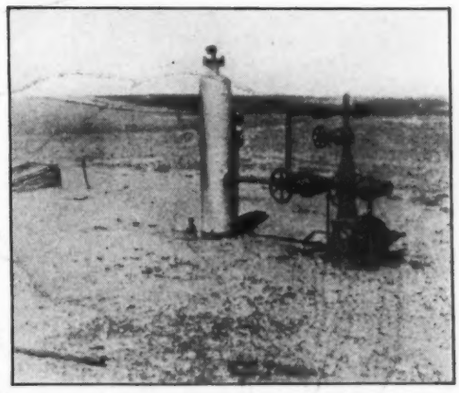
These fields supply gas to all of the principal cities of Montana while the Baker-Glendive field serves several towns and cities in North and South Dakota. All of this gas comes from formations of Lower or Upper Cretaceous age except the Pondera field where the gas comes from the Madison lime of Mississippian age. The producing formations are all comparatively shallow, ranging from 700 to 850 feet in Baker-Glendive to 4,400 feet in Dry Creek. These formations range from 10 to 150 feet in thickness and the initial pressures ranged from 200 to 1,400 pounds per square inch. The fields have recorded production in excess of 100,000,000,000 feet of gas up to the end of 1935 and about 15,000,000,000 feet was marketed in each succeeding year. This makes the industry one of major importance in Montana and it is now suggested that added markets might be developed for this resource by extending pipe lines to Seattle and Spokane, Wash., on the west and to Minneapolis and St. Paul, Minn., on the east.

The Cut Bank field could be drawn upon to supply gas for the cities in Washington as Seattle and Tacoma are only 475 miles away while Spokane is about 245 miles distant. On the east, it is contended that the Baker-Glendive field could supply Minneapolis and St. Paul located about 625 miles from that field and the line might be extended to Duluth, Minn., which is only 660 miles from eastern Montana. About 1,500,000 people live in those six cities and the demand would be for gas for both domestic and industrial use.

Seven Systems

In Montana there are seven distributing systems of major importance with several smaller lines serving local communities near the gas fields. The map accompanying this article shows these lines and it together with the other details contained in this article has been largely taken from the recently issued Memoir No. 3 on "Natural Gas in Montana," by Eugene S. Perry, of the Bureau of Mines and Geology, Butte, Mont. This is a complete report of natural gas conditions in Montana.

While natural gas in commercial quantities has been known to exist in Montana for the past 25 years the development of this resource on a large scale has occurred only during the past 10 years. The principal gas lines were laid from 1928 to 1931 and the gas transported in those lines came from wells drilled between 1925 and 1931.



Well and dehydrator in Cut Bank gas field

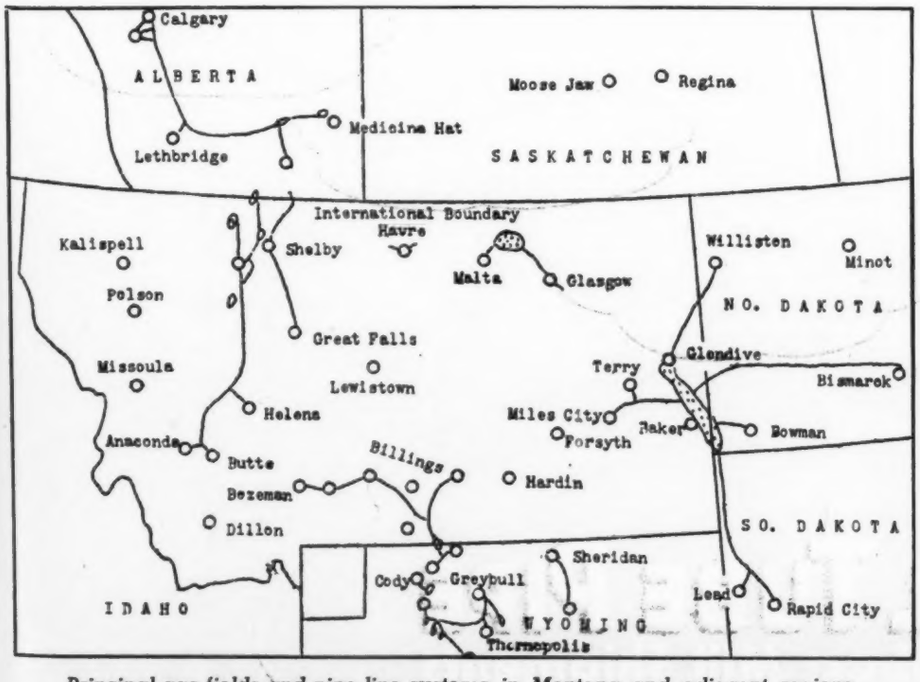
The report brings together detailed information covering the gas fields of Montana for the first time in one volume although many of the fields have been previously described in articles appearing in various technical publications. The geology of the fields is fully covered in this report as well as the history of the area and capacity of wells, depth to producing formations and other information of interest. The field work was done between 1929 and 1936 and maps, well logs, sand samples and statistical information compiled.

All of Montana's commercial gas and oil fields lie east of the main range of the Rocky Mountains, mainly in the plains areas where sedimentary rocks lie nearly horizontal or but gently folded. The Dry Creek and Elk Basin fields lie in the foothills of the Beartooth Mountains. There are eight oil fields closely associated with the gas fields either in the same horizon or in deeper or shallower formations. In six fields gas occurs without known occurrence of oil. Besides the 14 gas fields there are four oil fields in which as yet commercial amounts of gas have not been discovered, either in the oil-bearing horizon or in associated strata.

These gas fields vary in size from 200 acres at Boxelder in Blaine County to three fields of about 50,000 acres each. They are Kevin-Sunburst-Shelby, in Toole County near the Canadian line, Bowdoin-Saco in Phillips and Valley counties in the northeastern part of the state and the Baker-Glendive area extending through Fallon, Wibaux and Dawson counties for a distance of 75 miles in Montana. This structure also extends into North Dakota about 25 miles.

All commercial gas in Montana has been produced from formations of Cretaceous age, but some gas of inferior grade has also been found in Paleozoic strata. The principal gas-bearing sandstones lie within the Kootenai (Cloverly), Colorado and Eagle formations, and in the Baker-Glendive field at a horizon corresponding to the Judith River formation. The several gas-bearing formations are to be found throughout most of the eastern and central parts of the state but not all of them yield oil or gas in all localities.

Montana gas wells have ranged in open flow volume from a few thousand to 72,000,000 feet per well per day. Within a given field and even within the same geological horizon, initial open-flows may differ greatly, even where wells are



Principal gas fields and pipe line systems in Montana and adjacent regions

TELEPHONE

HOUSTON
L. D. 203 Local "Cap" 1301

DALLAS
L. D. 584 Local 2-4282

SAN ANTONIO
L. D. 219 Local "Gar" 5671

CORPUS CHRISTI
L. D. 31 Local 574

SHREVEPORT
L. D. 15 Local 6481

BRIDGEPORT

ODESSA
L. D. 683 Local 684

TULSA
L. D. 681 Local 5-3204

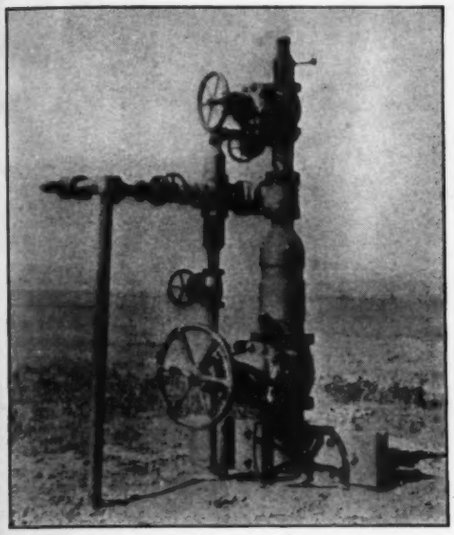
OKLAHOMA CITY
L. D. 785 Local 7-2725

WICHITA
L. D. 59 and 116
Local 2-1431 and 2-1432

AND BRANCH STORES

NATIONAL TUBE PIPE
Out of Stock or Direct Mill Shipments

not far apart. In the Kevin-Sunburst field, initial flow of wells in the Sunburst sand ranged from less than 100,000 feet to 20,000,000 feet per day with an average of about 3,000,000 feet daily. Wells in the Cut Bank field flow gas from the Cut Bank sand ranging from 1,000,000 to 37,000,000 feet daily capacity, with an average of 11,000,000 feet. In the Baker-Glendive field wells



Valves and fittings at gas well in Shelby, Montana, field

drilled to the same horizon ranged from less than 1,000,000 to 27,000,000 feet daily capacity and an average of about 6,400,000 feet. Wells in the Bowdoin-Saco field averaged about 1,000,000 feet daily and in the Hardin field about 80,000 feet. These wide variations in well capacities are undoubtedly chargeable to change in porosity of the gas-bearing sandstone, which results mainly from variation in the amount of shaley material in the sandstone. Porosity in Montana gas-producing sandstones ranges from about 5 to 25 per cent and the average will probably be between 12 and 18 per cent.

Helium Content

The commercial gas of Montana varies in B.t.u. content from 897 to 1,150 units. One other noticeable fact in studying the analysis of samples of Montana gas is the large number of wells producing helium. The helium content varies from .02 to .22 and in this connection C. E. Dobbins in his discussion of Montana gas states:

"In Montana natural gas containing 0.27 per cent of helium has been found in the Eagle sandstone of Upper Cretaceous age in the small Havre field at a depth of about 1,250 feet. In the Kevin-Sunburst-Shelby field a small flow of gas containing 0.73 per cent helium and about 39 per cent nitrogen was encountered in rocks of Cambrian age at a depth of 4,600 feet. Gas from the Madison limestone of Mississippian age in the Pondera field contains about 0.25 per cent of helium." The amount of helium so far found in Montana gas is not commercially important.

In his report Mr. Perry purposely omits any estimate of reserves of natural gas in Montana because of the many variable factors occurring in each field and sometimes in different parts of the same field. However, in the discussion of the individual fields much data are included from which fair estimates might be made by anyone interested in making such computations.

After discussing in much detail each of the gas producing areas of Montana Mr. Perry concludes his report with a very carefully prepared review of the prospective and unproductive areas of the state. This section of the report is divided into a discussion of northeastern, southeastern, and central Montana as well as Porcupine dome in east-central part of the state. These vast regions have been only slightly explored as yet but it is recommended that future work be done only on the advise of a geologist quite familiar with the country and that the company or individual making the tests be prepared to complete the well to lower formations, many of which have as yet been unexplored. There is much evidence of structures and favorable stratigraphic sections in many parts of Montana with the exception of the mountain region in the western part.

ARKANSAS BOARD

(Continued from Page 25)

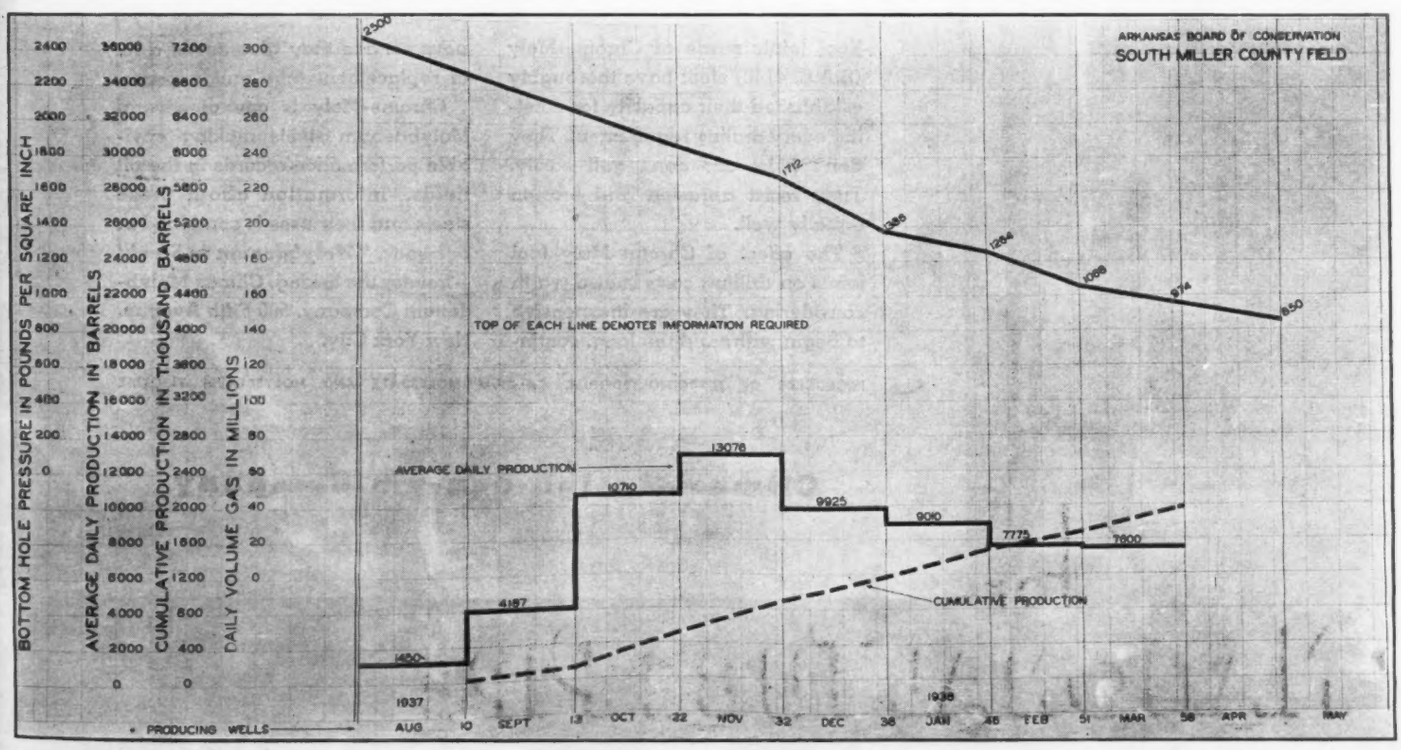
below 100 bbls. Although the basic field allowable has been set at 8,000 bbls., the downward production adjustment in high gas-oil ratio wells will reduce the actual allowable to a much lesser figure.

Gas Well Allocation

Recently a market was obtained for the production from eight gas wells in the field and a gas proration formula was adopted by the board to govern this production. The total allocation figure will be set following pressure and potential tests to be made on the wells this week. These tests will be made according to the Bureau of Mines back-pressure method which allows a determination of the potential of each well without undue waste of gas. The allowable will be set to market demand with a limitation to reservoir voidage comparable to the oil wells in the field.

The total allowable gas production will be divided into two parts. Two-thirds will be based on the product of the acreage and the well pressure of each well in comparison to the total for the field. The remaining one-third will be allocated according to potential. In no case shall more than 160 acres be allowed in determining the first factor for any well, and no gas well shall be allowed a production in excess of 35 per cent of its daily potential.

A revision in bases for the determination of oil allowable was made necessary due to the rapid change in the differential pressure pattern of the field. Representative bottom-hole pressures, which formerly determined the allowable were nearly impossible to obtain when key wells continued to go to artificial lift. The bottom-hole pressure survey of the field will be continued, however, each 60 days to determine the effect of the new order on the pressure pattern. Should there be no change in this pattern toward equalization, the board will further reduce the allowable and gas-oil ratio.



Pressure-production chart showing decline in pressure in South Miller County extension of Rodessa, and the attending drop in production

No String is Stronger than its Tool Joints

Tool joints made of Chrome-Moly (S.A.E. 4140) steel have thoroughly established their capacity for meeting every drilling requirement. They don't twist off; don't gall easily. They resist abrasion and erosion equally well.

The effect of Chrome-Moly tool joints on drilling costs is also worth considering. They are inexpensive to begin with; and the long, continuous service they give saves a lot of replacement time and expense.

Chrome-Moly is one of several Molybdenum steels making enviable performance records in the oil fields. Information about these steels and their uses is contained in our book, *"Molybdenum in Steel"* —free for the asking. Climax Molybdenum Company, 500 Fifth Avenue, New York City.

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INTERNATIONAL NEWS

Notes and Negotiations Continuing Over Mexico

Great Britain renewed its demand last week that Mexico return expropriated oil properties to companies which are essentially British. Meanwhile, high officials of American oil companies involved in the expropriation conferred with department of state representatives in Washington.

In its second note to the Mexican government the British government pointed out it does not admit the validity of the arguments in the Mexican note of April 12 and maintains the opinions previously expressed.

Regarding the Mexican contention that the British government was precluded from intervention in behalf of Mexican Eagle Co. because the latter legally was a Mexican entity, the note reminds that the representations of the British government were not made in behalf of the company itself but in "behalf of a large majority of shareholders who are of British nationality." The note declared that the ultimate sufferers from Mexico's action are British and that the undertaking essentially is a British interest.

The note adds:

"Should the doctrine be admitted that a government can first make the operation of foreign interests in its territory dependent upon incorporation under local laws and then plead such incorporation as justification for rejecting foreign diplomatic intervention, it is clear that means would never be wanting whereby foreign governments could be prevented from exercising their undoubted right under international law to protect the commercial interests of their nationals abroad.

"His Majesty's government cannot admit such a doctrine as debarring them from intervention, any more than they have ever regarded themselves precluded from intervening in behalf of its nationals by existence of a so-called Calvo clause."

(The "Calvo doctrine," referred to above, was advanced by Carlos Calvo, Argentine jurist and author. It provides that the collection of pecuniary claims made by citizens of any country against the government of another country should never be made by force. The United States has never recognized it.)

Regarding the contention that denial of justice could not be claimed while the case still was in the courts, the communication declared:

"The validity of the expropriation decree in the light of the provisions of Mexican law and the constitution may indeed still be sub judice, but in view of the period that may elapse before termination of the proceedings in the Mexican courts and also considering the fact that the Mexican government are not awaiting the outcome of the proceedings and great damage already has been inflicted on British shareholders, which may become irreparable before the proceedings are ended, also in view of the conviction that the action taken was contrary to equity and the rules of normal international practice, my government regarded and regard themselves entitled, without further delay, to present to the Mexican government their view of the case hoping the Mexican government will see a way to reconsider their decision. This still is their hope."

While nothing official came from the Washington meeting between department of state and American oil company officials, it was intimated that corporation representatives discussed what they considered adequate indemnity for the properties expropriated.

Josephus Daniels, United States ambassador to Mexico, was en route to Washington last week end. It was concluded the department of state was anxious to have Mr. Daniels either participate in the discussions or that further instructions on negotiations might be given.

Eduardo Saurez, minister of finance of Mexico, departed from the United States after spending more than a week in this country without reported progress on his efforts to obtain tankers, dispose of Mexican petroleum or to make arrangements for motor fuel blending agents.

There was no reported change in the physical condition of properties in Mexico. Tankers are unavailable to the nationalized oil industry, partly because tanker owners are dependent for their "long-haul" business on the very companies offended in Mexico. There is the further reluctance of boat owners to negotiate with Mexico because of the currency situation existing in that country. The Mexican congress decided last week to issue an internal bond issue to raise 100,000,000 pesos for indemnification of the oil companies, but it is known the sum is entirely insufficient to meet demands of the companies.

The companies also have declared their opposition to accepting payment for the properties from oil production and sales. The state department is said to be desirous of effecting an arrangement between the Mexican government and the former oil companies under which the latter would take over the marketing and perhaps supervise operations of Mexican oil production, deducting the amount owed the companies from sales. That the oil companies insisted upon adequate payment in cash and minimized the possibility of a marketing arrangement was reported from Washington following last week's conference.

In Mexico City the government was considering a proposal to consolidate the expropriated oil companies' properties into one compact unit. The proposal drew immediate protest from the 18,000 workers who see in the plan a probability of reducing the payroll by 50 per cent or more. There were additional rumors of contracts between the Mexican government and private interests involving sales of petroleum or products, but they all lacked definite confirmation, excepting that to the Davis group the preceding week.

Negotiations were still unsettled between Francis Rickett, British promoter, and Ben Smith, Wall Street broker, and the Mexican government. Some reports said the two individuals had made tentative arrangements to absorb 15,000,000 bbls. of Mexican petroleum over a six months period, but that nothing definite would be announced until tankers had been obtained to transport the oil.

Tropical Oil Co. Increases Its Colombian Crude Production

International Petroleum Co.'s crude oil production in Peru continued through March at a slightly reduced rate compared with the same month and quarter of 1937, but Tropical Oil Co., a subsidiary, operating in Colombia, expanded its output.

Tropical produced 1,814,774 bbls. of crude in Colombia last month boosting recovery for the first quarter of 1938 to 5,043,250 bbls. For the same month in 1937, Tropical produced 1,622,226 bbls. and yield for the first quarter of last year totaled 4,908,157 bbls. International's production in Peru last month amounted to 1,248,339 bbls. and for the first quarter totaled 3,377,954 bbls. The company produced 1,272,864 bbls. in March, 1937, and yield for the first quarter last year stood at 3,689,338 bbls. In addition to International's production in Peru, Lobitos Oilfields' output is about 7,000 bbls. per day and Zarritos produces about 100 bbls. per day.

First Wildcat at Guarico Reported From Venezuela

The first wildcat oil test in the state of Guarico, Venezuela, has been started by Caracas Petroleum Co. and General Mining Co. near the town of Mercedes. The test is known as No. 1 Guayabo. Acreage around the No. 1 Guayabo is owned by the two companies drilling the test, by Alfred Meyer who is also head of the Caracas Petroleum Co. and by Atlantic Refining Co.

Texas Co., which recently opened an office in Caracas, is scheduled to drill at least two wildcat tests on Venezuelan property this year. One test will be on the lands held in the federal territory of the Delta of Amacuro north of a test Standard Oil Co. of Venezuela is preparing to drill about 10 kilometers north of the village of Vuelta los Indios on the Macareo River. The other Texas Co. test scheduled for drilling in 1938 is on the Rincon-Largo concession southeast of Santa Ana where Mene Grande Oil Co. has developed production.

Mene Grande Oil Co. is preparing to start drilling its No. 1 San Joaquin about 14 kilometers south of Standard of Venezuela No. 1 El Roble which is testing at about 7,400 feet. The new San Joaquin test is 15 kilometers northeast of Mene Grande No. 1 Santa Ana. Standard of Venezuela has started its sixth test on Pantepec acreage, No. 1 Algarrobo, two kilometers southeast of No. 1 Yopales.

Another new Standard of Venezuela test in the eastern part of Venezuela is No. 1 Asceital, near the town of El Rosario, about 20 kilometers northeast of No. 1 Temblador, a new field discovery producer.

Japan Denies Report of Monopoly In Oil in North China

The Japanese foreign office in Tokio advised last week that Japan does not plan an oil monopoly in North China. The foreign office spokesman said the United States protest against a North China oil monopoly was based on a misunderstanding. He said Japan intends for a Japanese firm merely to import and distribute oil for military purposes, leaving public distribution to other nationalities already functioning.

Sales quotas of petroleum products in Japan for the 12 months of 1938 were announced by the Fuel Board of Commerce and Industry Ministry on March 29 1938, according to a report released by Domei, the official Japanese news agency. Commencing May 1, the consumption of gasoline and heavy oil will be controlled under a strict system by the government and, in accordance with this policy, the fuel board has reduced the amounts. Sales of liquefied coal will not be included in the present quotas. Quotas of gasoline include gasoline mixed with alcohol. Following are the sales quotas for 1938:

Item—	Kiloliters
Gasoline: refiners	626,000
Gasoline: importers	476,100
	1,102,100
Lamp oil: refiners	120,500
Lamp oil: importers	54,500
	175,000
Light oil: refiners	155,000
Light oil: importers	
	155,000
Machine oil: refiners	271,000
Machine oil: importers	29,000
	300,000
Heavy oil: refiners	418,000
Heavy oil: importers	1,081,700
	1,499,700

Italy Will Produce Synthetic Mazout From Sardinian Coal

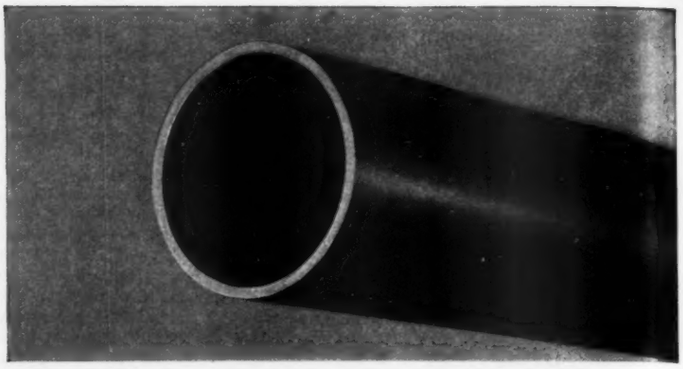
Synthetic production of mazout from Sardinian coal fields in Italy is proposed by Comm. Sandro Salvi, director general of the Impresa Furniture Industriali, S. A., Milan, Italy, if present negotiations with American interests and the Italian Exchange and Trade Institute, Rome, are completed. The Sardinian coal reserves, heretofore more or less undeveloped because of the sulfur content, have been tested in this country and are reported economically sound for conversion in Italy.

The Italian plants for processing Sardinian coal will be patterned after similar American enterprises at Philadelphia and Pittsburgh. Negotiations are going forward in Italy for insuring the regular transfer of royalties to the owners of the American process, according to advice given the department of commerce.

SIMPLIFY*

1 . . . STANDARD DRESSER PARTS ARE . . .

● The Dresser joint, like a pre-fabricated house, is made up of simple, standard, "factory-built," interchangeable parts. *No field fabrication is required.* All parts precision-made within close limits.

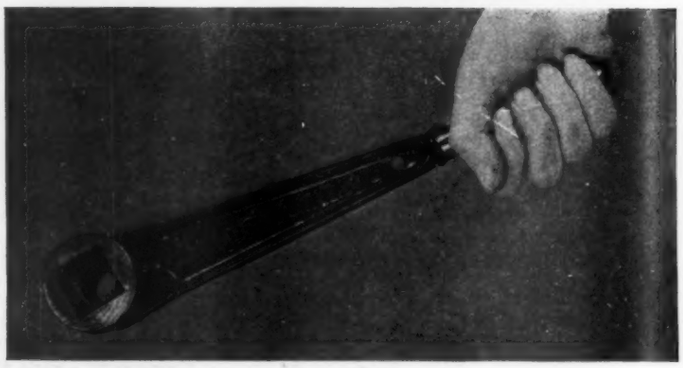


2 . . . ASSEMBLED ON PLAIN-END PIPE

● "Dressers" require no threading, drilling, grooving, nor reduction in wall thickness or strength; ideal for light-weight pipe; left-over lengths can be easily utilized. No damage to pipe ends during handling.

3 . . . BY UNSKILLED LABOR

● Inexpensive, unskilled labor, always near at hand, is used with "Dressers," eliminating the "human equation." Well-bunched crew is easily supervised; a mere handful of workmen needed.

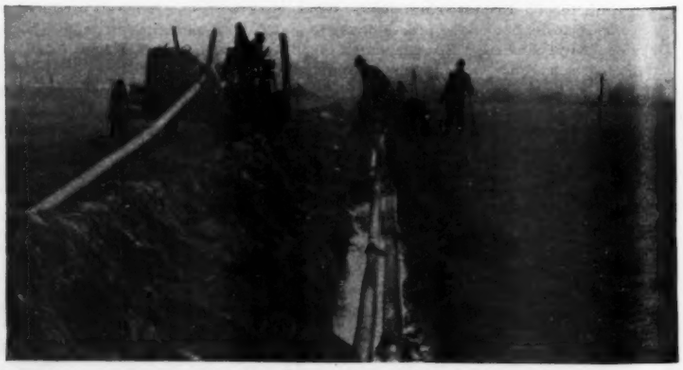


4 . . . USING ONLY ONE TOOL

● With "Dressers" you need no complicated, costly machinery and equipment—which is not only hard to handle, but also expensive to operate, maintain, and transport.

5 . . . WITHOUT LOST MOTION OR LAG

● Work moves forward in unison and without interruption on a Dresser-coupled line; no tedious alignment of pipe ends nor other slow joint-making operations hold up work; assembly practical from several points.



6 . . . UNDER ALMOST ANY CONDITIONS

● Snow, rain, ground-water, muck, swamps, etc., do not prevent making an "all-weather" Dresser joint; assembly is possible even under water, and/or in the dark, as on submerged line joined by diver.

ENGINEERING and OPERATING

In This Issue

CALIFORNIA DEEP WELL IS PROVING GROUND FOR NEWEST METHODS
By T. P. Sanders ..... *Page 46*

Completion of Continental Oil Co.'s 13,100-foot producer in the San Joaquin Valley extended the deep-producing record nearly 2,000 feet downward. Drilled to a depth of 15,004 feet, the well was plugged back to this depth to become a 3,000-bbl. producer. Due to its great depth unusual methods were used to complete the well. Also described is the surface equipment used, drilling procedures employed, formations encountered and other pertinent data.

BACKSIDE-CRANK PUMPING AND ROD LINE EQUIPMENT PROBLEMS
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Need for a more satisfactory method of solving rod line problems is generally recognized throughout the production phase of the oil industry. Here the author discusses rod line pumping in general and as applied to back-cranking in particular. By analytical discussion a method is developed for attacking the problem.

PROPANE DEWAXING AND DERESINING OF LUBRICATING OIL STOCKS
By M. B. Cooke, Earl Petty and Paul Barton ..... *Page 61*

During the past few years use of propane as a solvent dewaxing and deresining agent has shown great progress, due mainly to its self-refrigeration property. This advantage, and other features of the process, are described. Problems in connection with the treating of Mid-Continent and Pennsylvania lubricants are also discussed.

SERVICE CONDITIONS DETERMINE TYPE METAL USED IN REFINERY
By W. L. Nelson ..... *Page 68*

The great variety of service conditions encountered in refineries has necessitated development of a large number of alloys and steels. Here are grouped some of the most important phases of metal applications in refining including pipe still tubes, furnace castings (exposed), dewaxing, tubular exchangers, and vessels and fittings.

ECONOMIC ASPECTS OF THE PAWHUSKA VAPOR-LOCK ROAD TESTS
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The Pawhuska road tests completed last summer under the auspices of the W.P.R.A. and the N.G.A.A. revealed a great variance in the fuel systems of cars tested. Here the author discusses data obtained in these tests from the viewpoint of their economic meanings to the refining industry and to the motoring public.

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Deep Well Is Proving for Newest Methods

By T. P. SANDERS

A hearty handclasp at the wellhead. Roy M. Barnes, right, chief geologist, exchanges congratulations with his chief assistant, Glenn H. Bowes, at world's deepest well

California's oil industry always had its dramatic side. Near the close of the last century Edward L. Doheny dug his well with pick and shovel to discover the Los Angeles field. Nearly 30 years ago the Lakeview gusher came in wild to spray millions of barrels of oil over the surrounding country. Later fields with thousands of feet of productive strata were opened. Wells were drilled half a mile out in the ocean, and tools and methods developed were to be used in all parts of the world.

The industry in California today is no less spectacular than when this state led the nation in oil production. One needs only to consider Continental Oil Co.'s recent completion near Wasco in the San Joaquin Valley. Never before in the state's history has one well achieved so many marks of distinction.

Continental's No. 2-A KCL, section 8-27-24, Kern County, is important for many reasons, but it is difficult to grasp its full significance. It is difficult to imagine a hole in the ground 15,004 feet deep. It is hard to visualize the significance of an intricate completion method, never before attempted, successfully performed for the first time 2½ miles below the surface.

Before achievements of this kind could be evaluated properly, the 15,004-foot hole suddenly became a 3,000-bbl. well. This was generally unexpected. In fact the test had been referred to a few days earlier as "the deepest and one of the dryest holes in the world." Now oil 2½ miles deep is rushing to the surface at the rate of 3,000 bbls. a day.

Being a wildcat situated about 15 miles from the nearest production, it was at once evident that the well had opened a new oil field. But even with this, the well's economic importance does not end, for the existence of the field greatly enhances the productive possibilities of the entire structural trend upon which the pool is located. This structural feature, known as the Greeley-Rio Bravo-Shafter-Wasco trend was disclosed at depth through seismograph work nearly two years ago; but its economic value north of Rio Bravo was a matter of speculation. It now appears likely that other fields will be discovered along this trend between Rio Bravo and the Continental completion.

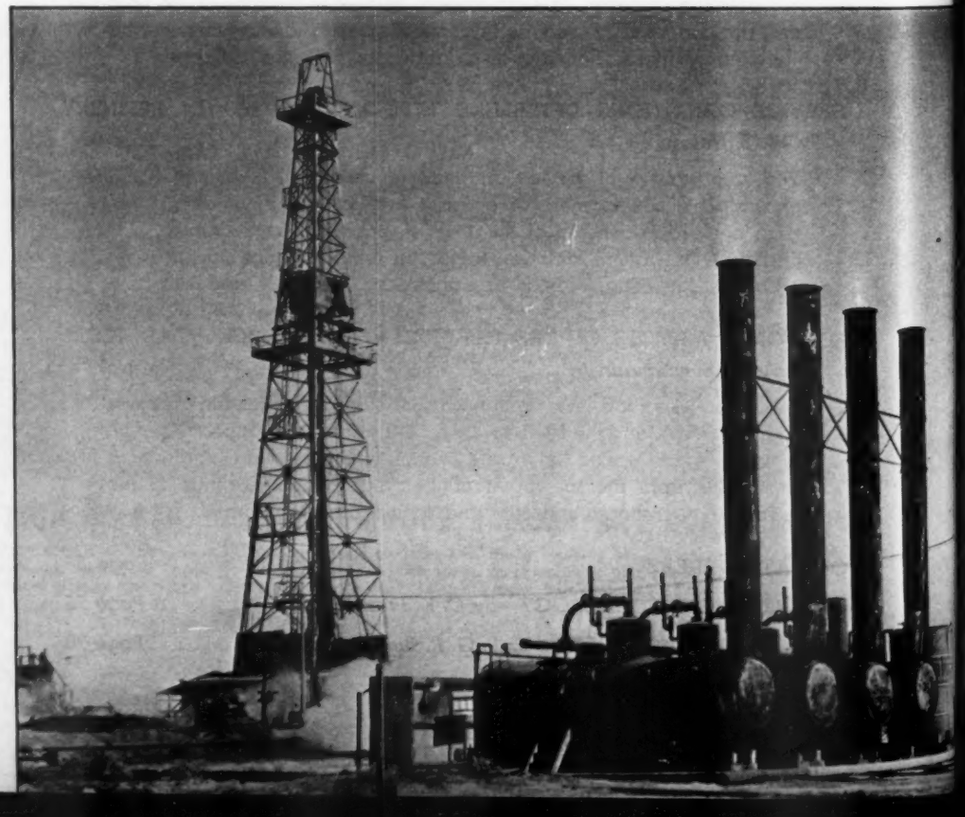
Deepest hole in the world, deepest producing well in the world, discovery well of the deepest known oil reservoir, prover of a major structural trend, proving ground for a new completion method—these distinguishing features are remarkable for a single well to offer. The outward appearance of the well does not suggest the unusual. Like most record-breaking wells, it is a triumph of orderly and persistent operation.

Past records were shattered rather than merely broken. The former record for deep drilling was established three years ago by Gulf Oil Corp. in its No. 103 McElroy in Upton County, Texas, which reached a depth of 12,786 feet. No. 2-A KCL went 2,218 feet deeper, and 2,218 feet once was considered a deep well. Many comparisons have been made in an attempt to convey the magnitude of this achievement. Some call it "nearly 3 miles," others say "deeper than Mount Whitney's elevation, which is the highest point in the United States." Still others say "27 times as deep as the Washington Monument is tall," or "15 times as deep as the Empire State Building is tall." One man suggested that if the drillpipe were stuck straight up in the air, like Jack's beanstalk, its upper half would be covered with snow and ice, since it would be in freezing temperatures. It would also be a menace to aviation.

Record Extended 2,000 Feet

The Wasco well produces from a zone lying between 13,085 and 13,170 feet. Previously the world's deepest production was being obtained from Union Oil Co.'s Rio Bravo discovery well at a depth of 11,302 feet. Thus the deep-producing

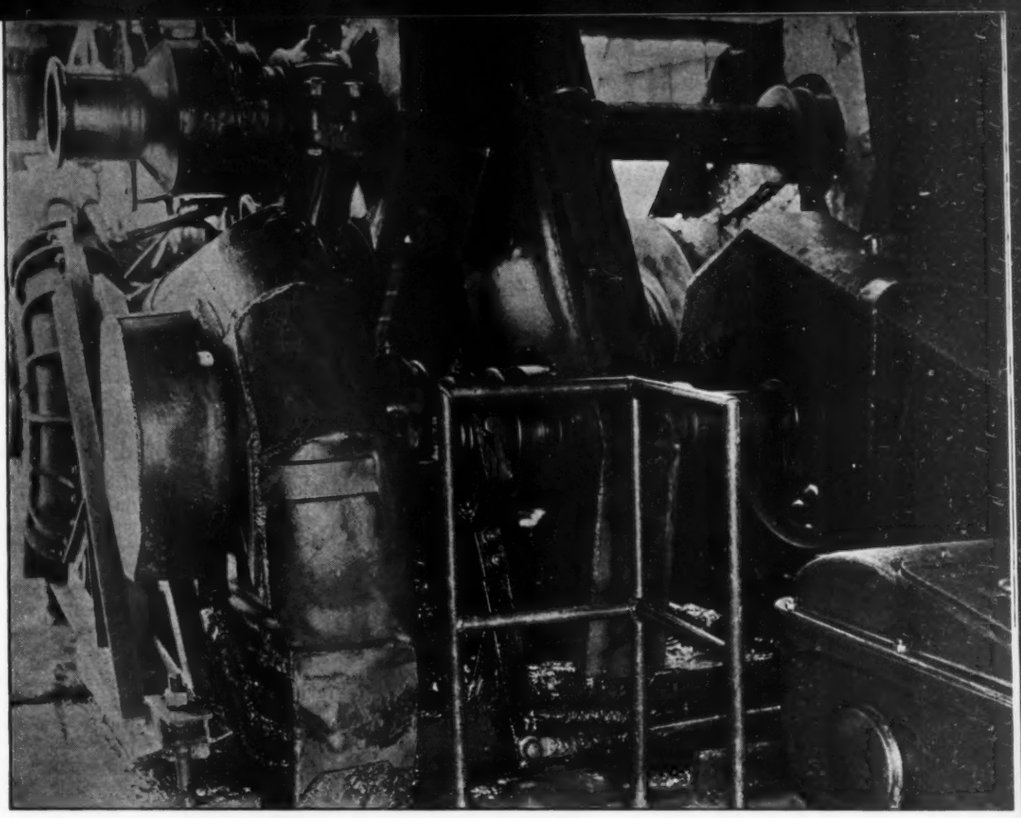
Battery of boilers. Steam pressure of 212 pounds is used with a superheater



Ground

record has been extended downward nearly 2,000 feet.

Perhaps it is misleading to refer to the record-breaking completion as a 3,000-bbl. well, for this description does not mean the same in all parts of the country. In the Mid-Continent fields this would signify a well capable of making 3,000 bbls. per day, flowing wide open through the casing. In California, however, it is more likely to indicate merely the maximum rate at which the well has been permitted to flow. In the case of the well under discussion the rate of 3,000 bbls. per day was established with the flow coming from a ¾-inch surface choke after it had passed through nearly 10,000 feet of 2½-inch tubing. Under these conditions the tubing-head pressure was maintained at 800 pounds. It is impossible to estimate accurately the wide-open potential, but perhaps 20,000 barrels per day would not be too high.



On the extreme left is an hydromatic brake used specially for deep jobs. The rotary machine is heavier than that used on ordinary wells

Long Search for Wasco Oil

Continental Oil Co.'s search for oil in the Wasco area was started about two years ago when a seismograph survey revealed the presence of a dome at depth. The discovery well represents the second of two deep tests drilled in an attempt to develop economic production. The first well is producing 7 to 10 bbls. a day from a depth of 9,591 feet. Up until the very last, when the second test became an unexpectedly large producer, the long search for oil was characterized by disappointments. Shortly before the producer was brought in it was concluded by most observers that while the Wasco area was structurally favorable for oil production, the sand bodies necessary for oil accumulation did not exist in sufficient thickness.

Deeper drilling never is attempted in California without a standby hoist on which the deadline is spooled. A convenient motor-driven combination hoist and wire-line reel was used on Continental's No. 2-A KCL

Credit Widely Distributed

Credit for the successful end of the long search must be widely distributed. Since Continental Oil Co. operates its own drilling rigs in California, most of the credit must remain within this organization.

Faith of the geologists and executives should not be minimized. If these men had been less loyal to their company or less courageous they would have played safe rather than risk reputations on such a venture. Many times during the year and 5 months of drilling on the structure abandonment would have appeared justifiable.

Great credit is due the men who performed and supervised the drilling. Severe conditions brought about many setbacks, but it must be granted that when a hole 15,004 feet deep is drilled without a single twistoff, skill is not lacking.

Equipment manufacturers and well-servicing organizations contributed to the success of the project. The personnel of several firms took active part in determining ways to overcome difficulties encountered.

First Wasco Disappointment

Continental's first test on the Wasco structure was No. 1-A KCL, 660 feet south of the present large producer. Both wells are in section 8-27-24. No. 1-A KCL was spudded in on November 7, 1936. Exceptionally good time was made during the first 18 days, and a depth of 6,500 feet was reached.

But trouble was started by a caving shale penetrated between 2,000 and 4,000 feet. At one time the hole caved so severely that drilling had to be started again at 2,200 feet. Twenty-one days were lost in trying to overcome the caving condition. It became apparent that water escaping into the shale from the drilling-mud was causing the shale to crumble, thereby starting caving. Many orthodox methods were attempted for overcoming this difficulty, but treatment of the drilling fluid with silicate of soda proved most beneficial.

By careful control of the drilling-mud a depth of 9,545 feet was reached, but a total of 13,565 feet had been drilled in order to reach this depth. Since strong oil shows were encountered at 9,545 feet, and since much trouble was being experienced in keeping the hole from caving, it was decided that a string of casing should be cemented at this depth. The hole had been conditioned and the drillpipe was being withdrawn when it became stuck at 9,303 feet, more than 200 feet off bottom. Work following this mishap represents one of the most unusual jobs in the history of deep drilling.

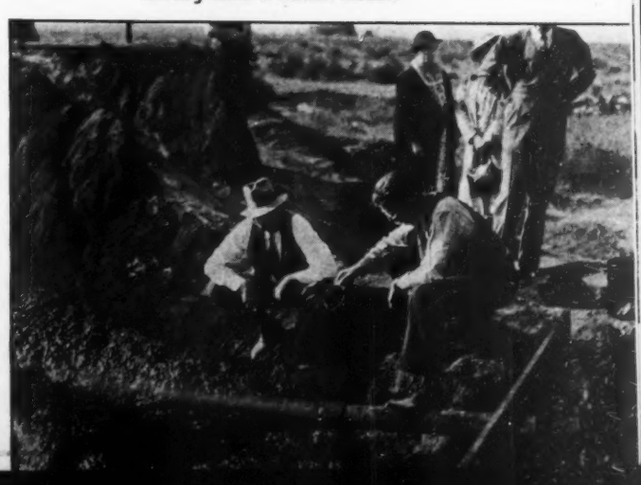
Due to the great depth, it was found impossible to remove the stuck drillpipe. Cause of the trouble was probably caving shale, but circulation was maintained. The drillpipe therefore was used as casing and was cemented in the hole. Enough fluid was pumped in behind the cement to leave the bottom of the drillpipe uncemented.

On the end of the drillpipe at the time it became stuck was a 7⅝-inch soft-formation wire-line core-bit. Through the center of this was a 2⅜-inch hole. Using a string of Hydril 2⅜-inch, 4.8-pound, external-flush drillpipe, and a 2⅜-inch diamond-point bit, the core-bit hole was reamed out to a diameter of 2⅝ inches. Through this hole the well then was cleaned out to bottom and new hole was made to a total depth of 9,591 feet.

The well, started with an 18-inch hole, was completed with a 2⅜-inch perforated liner set on bottom through the hole in the core-bit. The liner was 309 feet long with 88 feet perforated.

The wagering odds were upset when No. 1-A KCL became a producer on April 26, 1937. Flowing

Continental Oil Co.'s No. 1-A KCL as it appeared when it first started flowing into the sump through tubing and a small choke



1 2 3 4 5 6 7

These men played leading roles in drilling deepest well

1. F. E. Minshall, assistant to the vice president in charge of Continental's western division, went to work as a geologist for C. H. Beal in San Francisco after graduating from Stanford University and taking a year of graduate work in mining. Then he joined Marland Oil Co. When Marland merged with Continental Mr. Minshall became assistant to the manager of the California division. In 1935 he was elevated to his present post. He has done some record-breaking on his own account, for he attended 63 grade schools and 5 high schools. No, not expelled. His father had a railroad job which kept him moving.

2. E. W. Webb, assistant general superintendent of production and drilling, graduated from the University of California after taking time out for service in the trenches overseas. During vacations he worked in the Coalinga field. His first job after graduation was with Shell Oil Co. at Signal Hill. In 1927 he was made supervisor of gas-lift for Marland Oil Co. at Seal Beach. Two years later he became production foreman for Continental in the same field, and in 1931 he was advanced to district superintendent at Ventura. In 1935 Mr. Webb was promoted to his present post. He says sleeping is his hobby, but nobody believes it.

3. A. H. Bell, general superintendent of production and drilling, entered oil in 1915 as refinery engineer for Associated Oil Co. in California, then was made production engineer. In 1918 he became refinery engineer for Empire Oil & Gas Co. in Bartlesville, Okla., but soon found himself chief production engineer. In 1922 he joined Pierce Petroleum Co. as chief engineer of the manufacturing department, remodeling all plants and building the one at Tampico. He returned to California in 1926 as chief production engineer for Marland Oil Co. After the merger he was established in his present position with Continental.

4. Roy M. Barnes, chief geologist of the western division, was geologist for the California State Mining Bureau, Division of Oil and Gas, five years before he joined Continental's predecessor, Marland Oil Co., in 1926 as assistant chief geologist. In 1928 he was advanced to chief geologist. The teamwork which he built up is credited with being an important factor in the success of the Wasco exploratory project. Mr. Barnes was born in Los Angeles and after attending the schools there he entered the University of California, from which he graduated in 1916. He served as a lieutenant of engineers in France.

5. Glenn H. Bowes, assistant chief geologist, went to work in the production department of General Petroleum Corp. in 1922 after graduating from Stanford University and adding a year of graduate work. He served in various California oil fields for a year and then joined Marland Oil Co. as a geologist, working out of the Los Angeles office. From that time until the present he has been in the geological department, first of Marland, then Continental. Promotions were rapid. Mr. Bowes was absent from Stanford from 1917 to 1919 while he served as a commissioned ensign in the navy. He was born in Monrovia, Calif.

6. E. H. "Gene" Vallat, field geologist in charge of seismograph work for Continental at Los Angeles, entered the service of the company in 1929 in the geological department. In 1931 he was with Melville Mining Co. at Santa Monica, but in 1932 he returned to Continental to fill the post he now holds. He was born in Detroit, Mich., and until he entered Stanford University in 1922 all his schooling was received in that city. Upon graduating from Stanford in 1926 he worked for California Petroleum Co. for a year. For two years he served as an engineer for J. T. Thorp & Sons. Then he joined Continental.

7. C. Hall Montgomery, division subsurface geologist and petroleum engineer for Continental's San Joaquin Valley division, graduated from the University of California in 1920 and went to work as a petroleum engineer and geologist for Shell Oil Co. In 1924 he became resident geologist for Marland Oil Co. in the San Joaquin Valley, and he was retained by Continental after the consolidation. His careful supervision of coring operations in the deep test had much to do with its success. When he has any spare time he likes to spend it on Huntington Lake, where he is known as an expert sloop skipper.

by heads it averaged 13 bbls. a day for some time, but has declined to 7 bbls. of 28-gravity oil. It is possible that this production could be increased by some means of artificial lift.

Much information gained in drilling the first Wasco well proved invaluable on the second well. The Wasco area is characterized by much more difficult drilling conditions than are encountered in the Rio Bravo area to the southeast. Throughout a large part of the section high-pressure shows of oil and gas are encountered in the shale bodies. These are not considered of economic importance, but they make danger of blowouts imminent. It has been learned that wherever oil is found in shale in this region it is accompanied by considerable gas. Between 5,500 and 11,500 feet very heavy mud is necessary to keep this gas from working its way into the well bore in sufficient quantities to cause a blowout. Continental Oil Co. used mud weighing as high as 101 pounds per cubic foot in the second well. Mid-Continent terminology would describe such mud as 13.4 pounds per gallon.

The great hydrostatic pressures maintained through the use of heavy mud have an adverse effect on the caving shales present in the section. Water has a greater tendency to be forced out of the mud into these shales, thus causing crumbling and caving. To avoid this, viscosities must be kept high through the use of sodium silicate or other jel-forming substances. Whenever it is possible Continental Oil Co. has made it a practice to use very light mud. After the 7-inch casing was cemented at 11,573 feet in the second well to case off the troublesome gas shows and the caving shales, the mud used was merely water with a small addition of Aquagel. At this depth the hydrostatic pressure was great enough to control the gas shows encountered.

SUMMARIZED GEOLOGIC DATA ON THE WELL

Depth—	Lithology	Stratigraphy	Remarks
0 to 8,440± feet	Sand, silt and blue gray shale.	Pleistocene and Pliocene.	Oil in silty sand 7,119 to 7,143 feet.
8,440± to 9,527 feet	Grayish brown shale.	Upper Miocene (Reef Ridge and McLure).	
9,527 to 9,620 feet	Hard platy brown shale, chert streaks.	(McLure).	Oil and gas in cores and on ditch.
9,620 to 11,500± feet	Hard brown shale, some chert streaks.	(McLure, Valvulineria and Gould shale).	Oil and gas in cores and on ditch.
11,500± to 11,581 feet	Hard dark brown shale.	Middle Miocene (Upper Temblor).	
11,581 to 12,715 feet	Hard fine to medium sand, streaks of siltstone and hard dark shale.	(Upper Temblor) (Olcese sand).	Low permeability, fair porosity. Oil sand 12,599 to 12,610 feet.
12,715 to 13,100+ feet	Hard dark shale, streaks sand and sandy shale.	(Upper Temblor?)	
13,100+ to 13,580± feet	Hard fine to medium sand, streaks siltstone and hard dark gray shale.	(Middle Temblor) (Rio Bravo sand).	Low permeability, fair porosity except upper 35 feet where good permeability, porosity and oil saturation were indicated.
13,580± to 13,800+ feet	Hard dark gray shale streaks, hard sand and siltstone.	(Middle or Lower Temblor).	
13,800+ to 14,000± feet	Hard fine sand and siltstone.	Middle or Lower Miocene (Lower Temblor or Vaqueros).	Low permeability, low porosity.
14,000± to 14,162 feet	Hard dark in part fossiliferous shale.	Oligocene (Tumey shale-Leda zone).	Oil in cores and oil and gas on ditch below 14,100 feet.
14,162 to 14,600± feet	Hard dark shale.	(Upper Kreyenhagen-Uvigerina cocoaensis).	Oil and gas on ditch.
14,600± to 14,967± feet	Hard dark shale.	Eocene? (Lower Kreyenhagen?)	Oil and gas on ditch.
14,967± to 15,004 feet	Hard fine to medium sand, streaks siltstone. (Bentonite-indurated).	(Domengine-Avenal sand?).	Low permeability, low porosity. Oil showing at top.

Note: Random oil showings have occurred at depths other than noted.

Second Well Fails to Find Stevens Sand

On June 21, 1937, the second Wasco well was spudded in 660 feet north of the first well. No. 2-*A* KCL was intended originally as an additional test for the sands in the vicinity of 9,600 feet which had received an incomplete and unfavorable test in the first Wasco well. These sands were known to occupy approximately the same stratigraphic position as the Stevens sand, which had proved highly productive in the Ten Section, Greeley, and Canal fields to the southeast. This consideration added greatly to the significance of the small production obtained in the first Wasco well.

The second Wasco well found no sands in the stratigraphic position of the Stevens zone where sand had been expected. However, the shale found in the vicinity of 9,600 feet was pretty well laden with oil in the fractures and in the more porous streaks. This condition was hopeful, and drilling

(Continued on Page 49)

was continued in order to explore the lower stratigraphic horizons.

While drilling was in progress the Rio Bravo field was discovered 15 miles to the southeast. It therefore was deemed desirable to continue the drilling down to a depth of approximately 13,500 feet, where the Rio Bravo sand was expected.

Development of Rio Bravo Sand

The Rio Bravo sand was logged first in the San Joaquin Valley by Superior Oil Co. in its No. 8 KCL, Ten Section in section 11-30-26, near Stockdale. This test which reached a depth of 12,618 feet, was the deepest drilled hole in California for many months. The drilling was carried on efficiently, but no oil was found in either the Stevens sand or the newly logged Rio Bravo sand. For this reason the Rio Bravo sand remained unnamed until the opening of the Rio Bravo field.

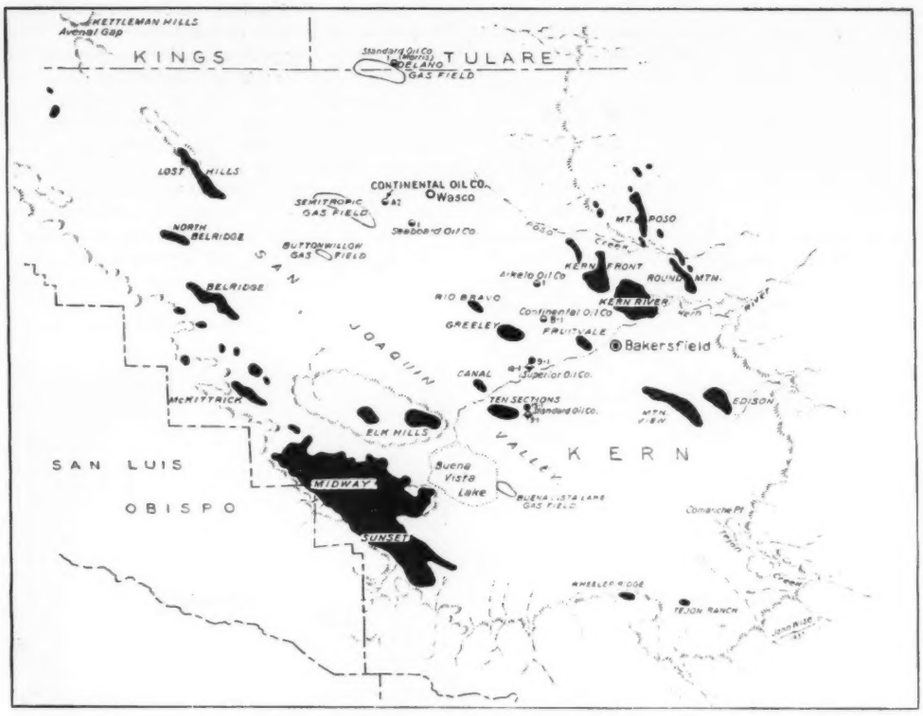
Distinction for having logged the first signs of oil in the Rio Bravo sand goes to Continental Oil Co.'s No. 1-B KCL near Rosedale. It is believed this sand will prove to be one of the most important oil measures in California in the future. It may be found productive in the Ten Section, Greeley, and Canal fields, and in other areas where structure and sedimentation are favorable. Some geologists contend that the Rio Bravo should be correlated with the Vedder sand, found in the Round Mountain and Mount Poso fields at a depth of approximately 1,900 feet. Others object to this correlation, though there seems to be some basis for the contention that the two sands occupy comparable stratigraphic positions. Correlation controversies are common in California, but at present this question is the greatest source of dispute.

The Continental well near Rosedale reached a depth of 10,210 feet before it was abandoned, but it failed to find commercial production in the Rio Bravo or in any other sand. Its importance lies only in the fact that it was the first test to log oil shows in the Rio Bravo sand. However, if the Superior test had not disclosed the presence of a sand at depth, the Rosedale test would have been abandoned before testing this horizon, since a severe fishing and sidetracking job had developed.

The next test made for production in the Rio Bravo sand was the now famous No. 1-34 Kern County Land, drilled by Union Oil Co. in section 34-28-25 near the townsite of Rio Bravo. This test had been intended originally as a test of the Stevens sand, which was expected at a depth of about 8,000 feet. It was drilled on a seismograph high similar to those which had led to the discovery of the Ten Section and Greeley fields. When it had been determined that the Stevens sand was missing and shale was in its place at this location, officials of the company concluded that it would be worth while to test the strata logged by the Superior and Continental wells. The result was a well which flowed 2,400 bbls. a day through a 40/64-inch choke from a depth of 11,302 feet. The top of the sand was found at 11,240 feet.

The substantial production obtained by Union Oil Co.'s Rio Bravo well was a determining factor in Continental Oil Co.'s decision to drill deeper in its second Wasco well after it had failed to find the expected sands in the vicinity of 9,600 feet. Thus the development of the Rio Bravo sand has occurred in four steps: Discovery of its existence by Superior Oil Co., discovery of oil signs by Continental Oil Co., discovery of commercial production by Union Oil Co., and establishment of its importance over a major structural trend by Continental Oil Co. It is interesting to note that these tests have found the sand at successively deeper levels as it was traced toward the axial center of the San Joaquin Valley.

It is considered likely that other pools will be found along the Greeley-Rio Bravo-Shafter-Wasco trend northwest of the Wasco structure. At present



Location of world-record well

no plans are known for testing of the Rio Bravo sand along this extension. Since the top of the productive zone was found at 13,085 feet on the Wasco structure, it would be expected at a still greater depth if a test were made to the northwest. Such a test starting from grass roots may appear unwise, but it is doubtful if much time will elapse before a test of this kind is attempted.

The next test to be made of the Rio Bravo sand will take place at Seaboard Oil Co.'s Conoco No. 1-C KCL in section 26-27-24 of Kern County. This test is on the Greeley-Rio Bravo-Shafter-Wasco trend between Wasco and Rio Bravo, but about 4 miles southeast of Continental's Wasco discovery well. On July 15 of last year drilling was suspended at this location at 10,243 feet to await outcome of the Continental drilling project at Wasco. Due to the successful Wasco completion, drilling must be resumed at the Seaboard well, according to the leasing agreement with Kern County Land Co. The Rio Bravo horizon will be expected at this location in the vicinity of 12,600 feet. The Seaboard project is a partnership proposition between Seaboard Oil Co. and Continental Oil Co., which have two and three-quarters sections of land under lease about the location.

Deep Drilling Play to Start

In spite of the great depth of the Wasco discovery competitive drilling will begin shortly on this structure. Because of the fact that all of the acreage is held in fairly large blocks, drilling will not reach boom proportions. Continental Oil Co. drilled the discovery well on a 1,760-acre block, but this company holds more acreage under lease immediately west of this block. Its lease requirements allow 60 days before starting a new well.

Standard Oil Co. of California, having a lease directly west of the discovery well, will be forced to start an offset well within 30 days to satisfy lease requirements. It will be interesting when rigging up for these tests commences, as choice of equipment will be an important consideration. Practically all the deep drilling tests have been carried out with equipment selected for much shallower penetration. In the Rio Bravo field rigs now are being equipped for 11,300-foot drilling, but never have rigs been assembled for the expressed purpose of drilling to 13,500 feet, as they will be in the Wasco area.

Type of Sand at Wasco

Perhaps it is wrong to speak of the productive horizon at Wasco as Rio Bravo sand. Geologists with an antipathy toward jumping at conclusions may prefer to classify these strata as "Wasco" sand. Nevertheless the position in Middle Miocene is comparable, and lithology strongly suggests the two sands represent the same stratigraphic member. Correlation over a distance of 15 miles is difficult in the San Joaquin Valley because of great changes in sedimentation. Also correlation is complicated by the fact that the base of the sand and the underlying sediments never have been penetrated at Rio Bravo as they have at Wasco.

Apparently the Rio Bravo sand found in Union Oil Co.'s discovery well near Rio Bravo is considerably better than the sand found at Wasco. However, the two fields cannot be compared on the basis of this criterion alone. Indications are that the Rio Bravo field is somewhat spotty, similar in this respect to the Greeley field. This condition may exist in the Wasco field also, but if it does it is quite likely that some of the succeeding wells will be more prolific than the discovery well.

In this connection it should be pointed out that in the Wasco well a thick zone of possible productivity lies untested below the producing formation. The present production is coming from a zone lying between 13,085 and 13,170 feet. The electric logs and cores showed good permeability, good porosity and good saturation in the upper 35 feet of this zone. The remainder of the zone has low permeability and fair porosity.

Below 13,170 feet, and down to a depth of about 14,000 feet, hard dark shale was found, with streaks of hard fine sand and siltstone but no evidence of oil. Below 14,100 feet oil was found in cores, and oil and gas appeared in the drilling mud. The strata were unfavorable for oil accumulation, being hard, dark shale of low permeability and low porosity but shows were so strong that it was considered well worth while to make arrangements for testing these strata when the well was com-

pleted. Upon completion the 13,100-foot zone was tested individually, and since this yielded production far beyond expectations the lower strata were not opened to production.

New Completion Method Used

An unusual completion method was developed in order to make it possible to test both zones. The method, devised by Continental Oil Co. and Baker Oil Tools, Inc., had not been used before, but it proved successful in all respects. With a single trip of the drillpipe a 2,898-foot liner was hung in the hole and two cementing jobs were performed to place slurry behind the blank sections of the liner. The entire operation of hanging and cementing the liner required raising the drillpipe only 85 feet. For this reason the task was accomplished with unusual rapidity in spite of the fact that both cementing jobs were carried out at depths never before reached in any hole. At the completion depth 9 hours was required to make a round trip of the drillpipe.

The procedure used, though complicated, was made safe by the use of drillable materials, especially Securaloy tubing, which was used to conduct the slurry down through the upper perforated section of the liner to the lower-stage cementing ports. This drillable tubing was removed without difficulty after the cement had set, but if it had resisted removal it could have been drilled up without danger of causing a fishing job.

When drilling was stopped at a depth of 15,004 feet, the hole was open below 11,573 feet, where a string of 7-inch 30-pound casing had been cemented. While chances for a large producer did not appear hopeful, it was decided that the production test should leave no doubt as to the value of the strata penetrated. In order to accomplish this purpose it was deemed necessary to include both zones of possible productivity, to cement off the intervening unproductive strata, and to provide for a test of indefinite duration.

Liner Assembly

The 2,898-foot liner was made up 4-inch belled, rolled and inserted tubing which had an outside diameter of 4½ inches. This was to be set in a 6-inch hole below the 7-inch casing-seat. In accordance with information gained from the electric logs and from cores the liner was slotted, using three rows of 1½-inch 200-mesh slots on 1-foot longitudinal centers.

When the liner was made up in the slips at the surface it was equipped for performing the two cementing jobs. It was run into the well on the string of 3½-inch range 2 internal-flush drillpipe which had been in use since the 7-inch casing had been set. When placed in its final position the bottom of the liner was at 14,315 feet while the top was hung at 11,417 feet, or 156 feet above the 7-inch casing-seat.

At the bottom of the liner assembly was a cast-iron bull-plug type casing-shoe. Above this was a 265-foot section of slotted liner. Fifty feet above the top of the slotted section a duplex cement-whirler float-collar with a solid bottom baffle was located. This was to serve for placing the slurry outside of the liner for the lower-stage cementing job.

Joined to the cementing collar by means of a right-hand thread was a string of Securaloy 3-inch O. D. tubing which extended upward 920 feet inside the liner. This drillable material, a product of Security Engineering Co., is commonly referred to in the field as aluminum, but in reality it is an alloy of aluminum combined with several other metals to give physical properties suitable for oil-well service. A shear joint was installed at the lower end of the drillable string so that it could be disengaged from the cementing collar by merely raising it, thus shearing a set of pins. Had this method of removal failed, the entire string could have been drilled out of the liner.

A Baker tubing pack-off collar was used at the top of the Securaloy tubing in order to pack off the annular space between tubing and liner. This was done to prevent cement from finding its way in between the two strings. The pack-off collar was made of drillable metal and rubber so that it could be drilled up easily. In installing the collar it was necessary to allow for plenty of expansion in the Securaloy tubing. A temperature of 268 degrees was known to exist in the hole, and it was calculated that this would cause the drillable string to expand 12 inches more than the steel liner in which it was enclosed.

Above the lower-stage cementing collar the steel liner consisted of a blank section extending from 14,000 feet up to 13,170 feet. Cement was to be placed behind this section up to a calculated depth of 13,300 feet.

From 13,170 feet up to 13,085 feet the liner was slotted, and at a depth of 13,000 feet a whirler-type cementing collar without its internal mechanism was located. This provided ports through the liner to be used for placing the upper cement column. In conjunction with this collar a metal petal cement-basket was used. This was provided with Crowell saxophone-type periphery valves.

A plain liner hanger was used to hang the liner assembly in the 7-inch casing. Approximately 1,600 feet of 2-inch upset tubing, connected to the bottom of the drillpipe through the J-tool, extended down into the liner to a point a few feet above the top of the Securaloy tubing. Thus, in its initial position, the lower end of the steel tubing was located below the upper-stage cementing ports. Inverted swab rubbers on the lower end of the tubing were used to close the space between this cementing string and the liner.

Running of Cement

Immediately after setting the liner the running of cement slurry was commenced without moving the drillpipe. The first 55 sacks pumped down the drillpipe went through the 2-inch steel tubing and through the Securaloy tubing to the lower duplex cement whirler-collar where it was discharged outside the liner to rise around the lower blank section. A surface pressure of 1,950 to 2,000 pounds was required to place the cement slurry. Pacific Oil Well Cementing Co. performed the work.

Following the first batch of slurry a bridging ball was dropped down the drillpipe. A Baker ball-dropping device installed directly under the cementing head at the surface was used for this purpose. With this device it was possible to drop the bridging ball without having to break the drillpipe to insert the ball into the cementing string. When it is necessary to break the cementing string while cementing through tubing, air is admitted into the string which may prove detrimental in several ways.

After the ball had been dropped and an increase in pump pressure had shown that it had been seated on the cap at the top of the Securaloy tubing, the drillpipe was raised sufficiently to draw the inverted swab rubbers up above the upper-stage cementing ports. When pumping of the cement from the surface was started again, the slurry was forced through the ports of the upper cementing collar to rise around the upper blank section of the liner. For this upper cementing job 120 sacks were used, and it was calculated that this quantity was sufficient to rise well above the 7-inch casing-shoe. The pressure required for the upper job was the same as for the lower.

After completion of cementing operations, circulation of drilling-mud was carried on for some time to remove any possible surplus of cement from inside the casing. Then the drillpipe and tail-piece were removed from the hole.

When sufficient time had been allowed for the cement to act, a surface pressure of 1,800 pounds was applied to the casing to test for leakage. The pressure held, indicating there were no leaks. The mud then was bailed out of the hole down to a depth of 5,500 feet. The fluid level showed no rise, thus indicating that the upper-stage cement had come up between the liner and casing as had been intended. Then the hole was reentered, this time with a small bit, which was used to drill the cement out of the liner down to the top of the drillable tubing. But the drilling was not halted at this

(Continued on Page 55)

ROY E. COLLOM

Roy E. Collom, vice president of Continental Oil Co. and chairman of the exploration committee, has been a miner, mill hand, and roustabout. His first job in the oil business was in California, unloading a car of firebrick. He soon became a fireman in the Coalinga field. "They said I burned a boiler and fired me," Mr. Collom recounts. He filled various oil jobs till 1915 when he became petroleum engineer for the California State Mining Bureau. He was made chief deputy oil and gas supervisor in San Francisco in 1918.

Resigning in 1919, he became a petroleum technologist for the Bureau of Mines in San Francisco and later in Dallas, Tex. After returning to San Francisco, Mr. Collom was appointed United States deputy supervisor for the administration of the Leasing Act. In 1921 he was appointed state oil and gas supervisor. In 1923 Mr. Collom became chief geologist for Coast Land Co., and when this firm became Mariand Oil Co., he was made vice president and chief geologist. He later became executive vice president but after the merger, he was appointed manager of the California division of Continental. In 1923 Mr. Collom went to Ponca City, Okla., as assistant to the president, but returned to Los Angeles a year later to take charge of California operations. In 1934 he was advanced to his present post.

Mr. Collom, who was born in Golden, Colo., received his early education in Denver and then attended the Colorado School of Mines. He was a student in the graduate department of Stanford University in 1906, when, he says, he was "graduated by the earthquake" April 18. For nine days after that he did Red Cross work in San Francisco. After working as a surveyor on mining claims in Mexico and Nevada the young man got a job sagging power lines for Central Colorado Power Co. over the Great Divide. He says he was "fired for faulty calculus."

point. The top of the drillable tubing, together with the tubing-packer, was drilled up to leave the tubing free at the top. A spear then was run on the drillpipe, which engaged the tubing. When the drillpipe was raised the shear joint at the bottom of the drillable string was parted and the entire string was removed from the hole. When this had been accomplished, the bottom of the hole was in readiness for a test of the strata opposite the upper slotted liner section.

The type of completion used in the Wasco well represents distinct departure from the usual San Joaquin Valley deep-well completion method. Since casing usually is set immediately above the producing zone and only one zone is ordinarily produced, cementing of liners generally is unnecessary.

Also most San Joaquin wells are completed with the idea in mind that deepening may be desirable at some time in the future. This was not the case with the Wasco well, because the underlying strata had been explored as far down as considered worth while before the completion work was undertaken. When there is a likelihood that a well is to be deepened in the future, drillable Securaloy liners are set opposite the productive horizon so that the liner can be drilled up to avoid making reduction of the size of the hole necessary in deepening. It is reported that the discovery well of the Rio Bravo field would not have been tested at the depth from which it now produces if a drillable liner had not made deeper testing possible in the event that insufficient production was obtained at the tested depth. Many of the wells in Ten Section, Greeley, and the Canal fields are equipped with drillable liners. It will be possible to deepen these wells to the Rio Bravo sand if it should become advisable.

Bringing in the Well

Before bringing in the well a 9,696-foot string of 2½-inch tubing was run with a tubing-catcher 993 feet from the bottom of the string. Swabbing inside the tubing, the fluid level was lowered to 2,000 feet. It rose 1,500 feet in 1½ hours. The christmastree then was installed and the well started flowing mud and water. After three hours it turned to oil. This took place at 1 p.m. on April 11, 1938.

On the first production test the well established a rate of between 2,900 and 3,000 bbls. while flowing through the tubing and a three-quarters inch surface choke. During this test the tubing pressure was 800 pounds at the surface, while the casing pressure was 75 pounds. The gravity of the oil, which was cut with 6.2 per cent mud and 1 per cent water, tested 34.7 degrees A.P.I.

When the test was completed the surface choke was reduced to a three-eighths inch opening to avoid crowding the available tank storage space. During the ensuing days the production was obtained through a one-quarter inch choke with the rate of flow gradually increasing. The casing pressure, tubing pressure, and the oil gravity also increased gradually as the mud between the casing and tubing left the well. The casing never was opened at the surface, so this mud, which was left back of the tubing, had to work its way out with the oil through the tubing.

By April 16 the rate of flow had increased to 1,131 bbls. a day through a one-quarter inch choke. This was 39.5-gravity oil, cut 0.6 per cent, and accompanied by 315,000 feet of gas. The tubing pressure had increased to 1,100 pounds, and the surface pressure to 735 pounds. Since this rate was too high, the bean size was reduced to one-eighth inch. On April 17 the well had to be shut in for lack of storage space.

Low Allowable for Big Well

There are no pipe-line facilities in the Wasco vicinity, since Continental Oil Co. has opened a new territory to oil production. There are oil fields to the south, east, and west, but none to the north and none in the immediate vicinity. This condition created a problem of marketing the well's output, especially as the well has come in during a period of overproduction.

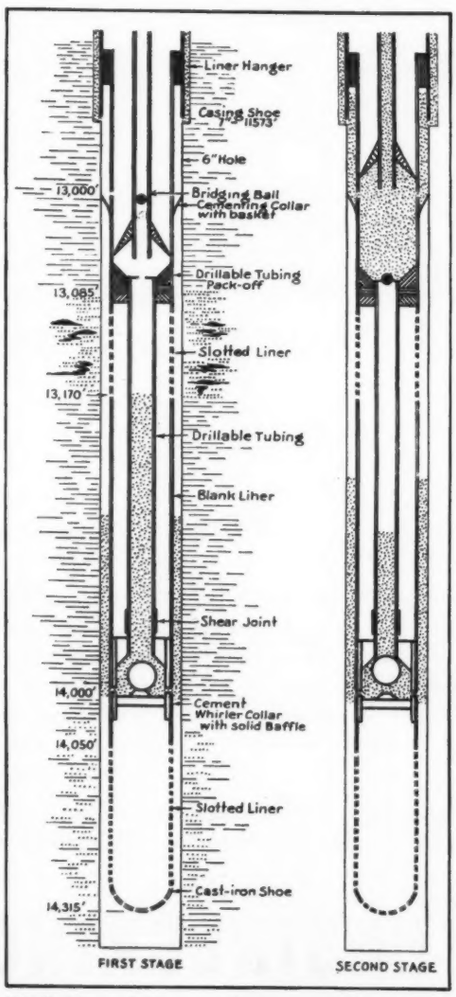
On April 16 Standard Oil Co. of California started taking oil from the location by truck to its Rio Bravo pipe-line station. The allowable production was established at 450 bbls. a day. This allowable is unusually small compared with rates of flow from the much shallower and much less costly Wilmington wells. The discovery well of the Rio Bravo field was permitted to produce at rates five or six times greater for a period of several months.

No pipe line is planned to serve the Wasco field, but it is probable that as soon as additional wells are completed this work will be undertaken.

Surface Equipment Used

There is a tendency to speak of the surface equipment used to drill the world's deepest well as an "ordinary rotary assembly," because most of the items were medium sized. However, the rig was more than ordinary. During the early part of the drilling, passers-by often stopped to look over the rig because of its modern and well-kept appearance.

The derrick used was a 122-foot Ideco galvanized-steel A.P.I. drilling derrick with 6-foot top extension and portable steel corner piers. Most of the other deep San Joaquin Valley tests are drilled with 164-foot or 178-foot derricks, and with much larger cellars than the one used at Wasco.



Method used for completing world's deepest well. With one round trip of the drill pipe the 2,898-foot liner was hung and two intermediate cementing jobs were performed. Since nine hours was required to make a round trip at this depth, the completion method resulted in a marked saving of time

A National Supply Co. Ideal four-speed unitized drawworks was used with a 36-inch roller-bearing Parkersburg hydromatic brake. The drilling engine was a 12 by 12 National Supply Co. Ideal-Ajax twin-cylinder roller-bearing steam engine. Other deep tests are now using 14 by 14 drilling engines. Drilling was started with a National Supply Co. Ideal 27½-inch high-speed rotary machine, but when great depth was reached this was exchanged for a 20½-inch machine of the same make. This was one of the few changes made in surface equipment during the course of drilling.

In keeping with California deep-drilling practice a standby hoist was used having two drums. One drum carried the deadline, while the other carried the sand-line used for running the wire-line core-barrels. The use of a 25/55-hp. electric motor on this unit made the hoist independent of the rig's steam plant. In case of trouble with the steam engine or boiler plant it would have been possible to remove the drillpipe from the hole with the standby hoist and its electric motor. At each trip of the drillpipe, several feet of drilling-line was spooled onto the hoist-drum in order to distribute the wear on the line more evenly. After a depth of 12,600 feet was reached, between 15 and 75 feet of drilling-line was taken up on the drum with each trip of the pipe. This was done to avoid possibility of a line break, but as a result the wire lines were subjected to an unusually short length of service while 10 lines were being used. The hoist was a Hopper Machine Works four-speed installation.

Three steam mud pumps were used: an Ideal 14½ by 7½ by 18-inch, and two Acme 14 by 7¼ by 16-inch. Valves and pistons were furnished by Oil Well Manufacturing Co. and Mission Manufacturing Co., respectively. A Martin-Decker mud-pressure gauge was used.

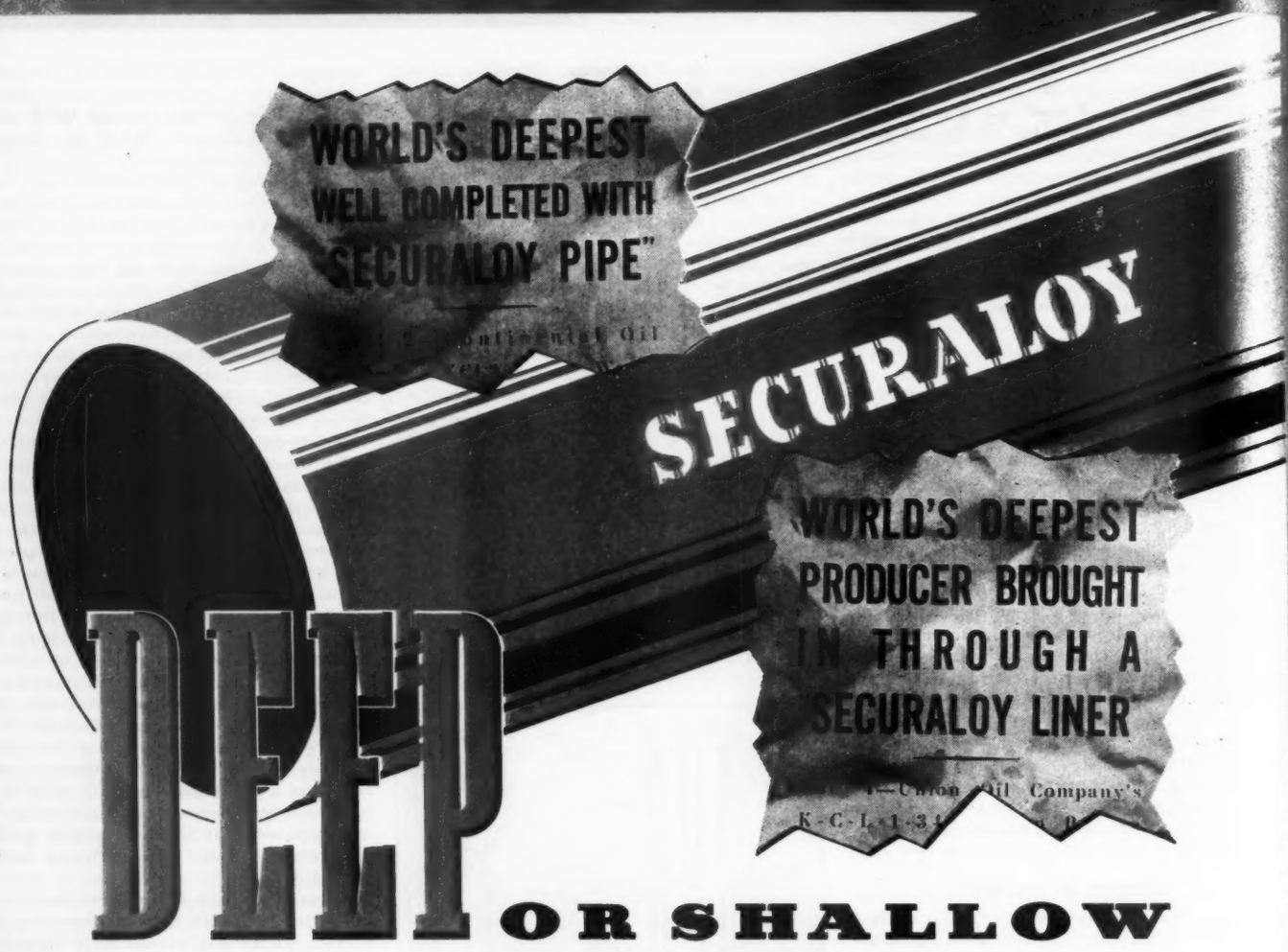
The steam plant consisted essentially of four 100-hp. 250-pound Titusville boilers and one Foster Wheeler portable oil-field superheater. The superheater maintained a temperature of 480 degrees on the steam leaving the plant. This amounts to approximately 100 degrees of superheat. Low-pressure N.G.E.-Nelson gas burners were used in conjunction with the Natural Gas Equipment Co. "Boilertrol" combined reducing-valve and regulator. By means of this equipment the gas fed to the burners and the air-draft ports was controlled automatically by the steam requirement of the rig. Reduction of pressure on the steam supply line automatically increased the rate of firing. Pinkerton boiler-water regulators were used. Other accessories included Angelus steel-clad boiler insulation, Wilson-Snyder feed-water pumps, Merco Nordstrom blowoff valves, and Marine Engineering Co. 85 per cent magnesium asbestos for the steam lines.

Casing

National Tube Co. supplied the first string of casing, which was 497 feet of 16-inch 65-pound seamless surface pipe. The same company supplied the intermediate string, which was 5,512 feet of 10¾-inch 55.8-pound National seamless Grade D casing. The longest string was 11,573 feet of 7-inch 30-pound Spang Chalfant extreme-line Grade D pipe.

The liner used below this depth was made up of National Tube Co. 4-inch seamless tubing. In cementing the surface string a Baker cement guide-shoe was used. On the intermediate string both a Baker float-shoe and a Baker float-collar were used. On the long string a Baker cement whirler

(Continued on Page 66)



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Back-Crank Pumping and Rod Line Problems

By J. C. SLONNEGER
Continental Supply Co.

In observing the various installations for back-crank pumping, one is impressed by the variety in sizes of equipment for the same pumping conditions. A little investigation will soon disclose that there does not exist a uniform method of selecting that equipment. It appears that the horsepower method is most commonly used. Beyond selecting the prime mover, the horsepower method is full of snares and accounts for some of the failures from overloads which have occurred all too often. Since there are an infinite number of combinations of force, distance, and time which will make one horsepower, it follows that force cannot be a measure of horsepower or vice versa.

The equipment between the prime mover and the bottom of the well is determined by force alone and has nothing whatever to do with horsepower. This statement is so elementary that one would feel presumptive to state it if it were not for the fact that it is being constantly misapplied in back-cranking problems.

OWNER _____ LEASE _____ WELL Nº _____
DEPTH _____ PLUNGER DIA. _____ SUCKER RODS _____
P.R. STROKE S _____ R.L. STROKE S_1 _____ JACK RATIO J _____
S.P.M. _____ ROD LINE DIA. _____ ROD LINE LENGTH _____
W_o _____ W_r _____ W_L _____ $\frac{S.SPM}{5400}$ _____

-UP STROKE-	-DOWN STROKE-
$W_o + W_r$	$\frac{1}{4} W_r$
$(W_o + W_r) \frac{S.SPM}{5400}$	$(W_o + W_r) \frac{S.SPM}{5400}$
PRL MAX SUM	PRL MIN. DIFF.
PRL MAX x J	PRL MIN. x J
0.2 W_L	0.2 W_L
SUM	DIFF.
$W_L \frac{S.SPM}{5400} \times \frac{1}{J}$	$W_L \frac{S.SPM}{5400} \times \frac{1}{J}$
RLP MAX SUM	RLP MIN DIFF.
RLP MAX x $\frac{S_1}{S}$	RLP MIN x $\frac{S_1}{S}$
PEAK TORQUE +	CB TORQUE −

WEIGHT TABLES

OIL		SUCKER RODS		LINE RODS		
PLUNGER DIA.	WEIGHT PER FOOT	ROD DIA.	WEIGHT PER FOOT	ROD DIA.	WEIGHT PER FOOT	MAX. LOAD
1 1/4	540	5/8	1.15	5/8	1.15	8,000
1 1/2	770	3/4	1.69	3/4	1.69	11,000
1 3/4	1050	7/8	2.25	7/8	2.25	15,000
1 15/16	1260			1"	2.95	20,000
2	1380					
2 1/4	1740					
2 1/2	2010					
2 3/4	2600					
3 1/4	4800					

Fig. 1—Form for calculating rod-line data

Another popular method of selecting this class of equipment is to choose the smallest and, therefore, the lowest priced equipment that any salesman, badly in need of an order, will hopefully recommend or guarantee. Just how that guarantee is to diminish the forces involved or to add unheard-of physical properties to materials has not yet been learned.

The selection of equipment by improper method is destined to cost the entire oil industry, both manufacturer and producer, an enormous sum. It is the purpose of this paper to arouse interest in this problem and to present the author's thoughts and experiences as his contribution to a better understanding of this problem.

The selection of equipment must begin with the pump at the bottom of the well. The depth and the quantity of fluid to be lifted must first be known, then the time in which this quantity of fluid is to be pumped, whether in 24 hours or some part thereof. Obviously if the well is to be pumped only six hours per day, the equipment will be larger and more expensive than if the same quantity of fluid is lifted in 24 hours. This is a common oversight. The producer often specifies equipment for, say, 50 bbls. per day, but upon investigation it is found that he intends to pump this quantity in five hours in order to save labor cost; actually he intends to pump at the rate of 250 bbls. per day for five hours. Often he is surprised at the size and cost of the equipment recommended and insists that something must be wrong for it cannot require very much for only 50 bbls. per day. Understand there may be no objection to pumping only five hours per day, as the saving in labor may very quickly offset the added cost of equipment. Nevertheless the equipment must be selected according to the pumping conditions. The proper choice of plunger size, stroke length and speed for a given production is beyond the scope of this paper.

A.P.I.—Presented before Eastern District, Division of Production, Pittsburgh, Pa., April 14-15

Assuming that the plunger size, sucker rod string, maximum stroke length, strokes per minute and depth of well are known, the maximum polish rod load may be calculated by the A.P.I. rating formula. (Suggested method for computing well loads A.P.I. Standards 11-E, second edition, September 1937.)

$$PRL\ max. = (W_o + W_r)\ (1 + S \times SPM/5400) \qquad (1)$$

This gives the maximum polish rod load (PRL max.) on the upstroke when pumping from bottom with zero fluid level and no gas assistance. If the fluid level is definitely known and it is certain that the fluid level will not lower, allowance may be made by modifying the factor W_o by the ratio of the fluid level to the total depth. It is quite unwise, however, to make this allowance on someone's hope or guess.

This calculated polish rod load determines the jack size. Most of the jacks on the market are conservatively rated for strength, and the manufacturer's polish rod load ratings are dependable. Bearing size, lubrication, adjustments, and other mechanical features are important but will not be here discussed.

A choice of jack ratio must now be made. Jack ratio for this discussion is defined as the ratio between the length of the polish rod stroke to that of the rod line expressed to the second decimal and shall be designated by the symbol J. The choice of this ratio may be a cut-and-try method on certain borderline cases, but in general rod lines run better with a high ratio, especially with shallow depths wherein the weight of the sucker rods is small. With the higher ratio the sucker rods have a better mechanical advantage to return the rod line rods. Of course, the ratio must not be so great as to overstress the line rods.

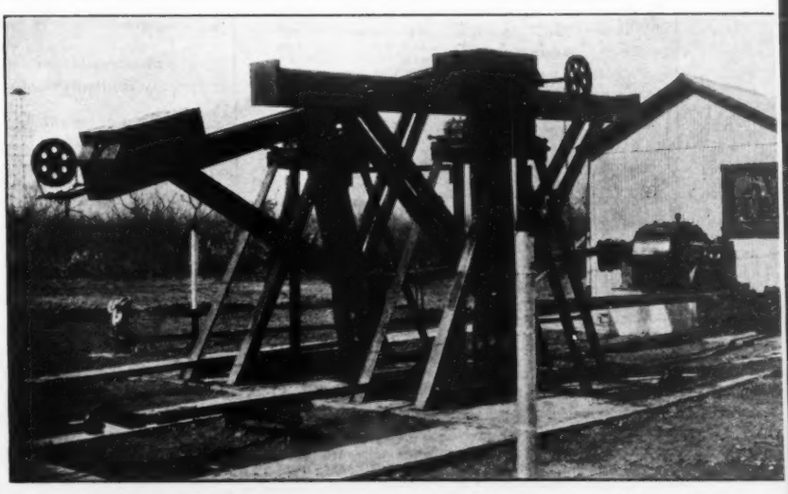
Polish Rod Load

Having chosen the jack ratio, the polish rod load may now be transferred to the rod line at the jack by multiplying the polish rod load by the jack ratio—thus:

$$RLP\ (at\ jack) = PRL\ (max) \times J$$

where RLP = rod line pull (2)
PRL max. = as calculated in equation (1)
J = jack ratio as above defined.

The maximum rod line pull at the knock-off post is increased over that at the jack by rod line friction and rod line inertia. By measuring the difference in work per stroke at the jack and at the knock-off post, the friction of the rod line with average installation was found to be .2 of the rod line weight. Roller rod line carriers or well-constructed catenary rod lines reduce the friction to as little as one-fourth this amount. Swings, hold-ups, hold-downs and hold-overs have a negligible effect upon the rod line pull except in cases where they act as multipliers. Where multipliers of any kind are in the system, the jack ratio should be considered as the ratio of the polish rod stroke to the rod line stroke at the knock-off post. The rod line



FOUR-WELL HOOKUP—*Two opposed wells on each crank*

TWO-WELL HOOK-UP—*One on beam opposed by one on back-crank*

friction (F_f) may, therefore, be taken as 0.2 of the rod line weight thus:

$$F_f = 0.2\ W_1 \qquad (3)$$

Where W_1 is the physical weight of the rod line.

The calculation of the rod line inertia (F_i) is based upon the same elastic speed factor as used in equation (1). The weight is W_2, the stroke is the polish rod stroke divided by the jack ratio S/J and the SPM (strokes per minute), of course, is the same, expressed thus:

$$F_i = W_1 \times \frac{1}{J} \times \frac{S \times SPM}{5400} \qquad (4)$$

The maximum rod line pull (RLP max.) at the knock-off post becomes the sum of equation (2), (3) and (4), combining we have:

$$\text{RLP max.} = \text{PRL (max.)} \times J + 0.2W_1 + \left(W_1 \times \frac{1}{J} \times \frac{S \times SPM}{5400}\right) \qquad (5)$$

So far the calculations have been based on level rod lines. Difference in elevation of the knock-off post and the jack may be allowed for on the basis of the elevation divided by the line distance and multiplied by the weight of the rod line. This gives the net rod line component force and should be added or subtracted from the rod line pull according to whether it increases or diminishes the forces involved. Ordinarily this calculation can be disregarded.

The torque imposed at the crank is found by multiplying the maximum rod line pull (Equation 5) by the stroke radius of the rod line S/2J or if the rod line stroke is represented by S1, the stroke radius becomes S1/2. The torque so calculated is the maximum inch pounds torque imposed by the well load alone without counterbalance effect. If this is considered a positive torque, we may write:

$$+PT = \text{RLP (max.)} \times S1/2 \text{ inch pounds} \qquad (6)$$

Incidentally the torque is independent of the hook-up from the rod line to the crank, for if there is a ratio other than unity between the crank stroke and the rod line stroke, the force at the crank will be inversely proportional to this ratio so that the torque will be unchanged. The effect of bearing friction on the torque is so small that it would not influence the selection of proper equipment.

On the downstroke, the weight of the rods produces a torque which would assist in overcoming any other torque then existing in the equipment. This may be called a counterbalancing torque or negative torque. It is now necessary to determine this torque. Its calculation must of necessity begin with the forces at the polish rod. The maximum counterbalance effect possible at the polish rod would be the physical weight of the sucker rods, but the effective weight of the rods is reduced by one-eighth of their physical weight by buoyancy and by another one-eighth by friction, therefore, leaving three-fourths their physical weight. Moreover, their effective weight of the rods is still further reduced by the elastic speed factor $\frac{S \times SPM}{5400}$

On the previous upstroke this elastic speed factor gives the increase of load over the static load due to speed. In an elastic system the unloading will be affected to the same extent as the loading, hence the effective weight of the rods will be reduced by the quantity $(W_o - W_r)\ \frac{S \times SPM}{5400}$, therefore, for the minimum polish rod load (PRL min.) on the downstroke we may write:

$$\text{PRL min.} = 3/4\ W_r - (W_o + W_r)\ \frac{S \times SPM}{5400} \qquad (7)$$

This may be transferred to the rod line as before by multiplying by the jack ratio J, thus:

$$\text{RLP min. (at jack)} = \text{PRL min.} \times J \qquad (8)$$

The rod line friction and inertia previously calculated reduces the effective rod line pull at the knock-off post, hence from equations (8), (3), and (4), the minimum rod line pull (RLP min.) at the knock-off post becomes:

$$\text{RLP min.} = \text{PRL min.} \times J - 0.2\ W_1 - W_1 \times \frac{1}{J} \times \frac{S \times SPM}{5400} \qquad (9)$$

The counterbalance torque (CBT) or negative torque may now be computed by multiplying equation (9) by the rod line stroke radius as before.

$$-CBT = \text{RLP min.} \times \frac{S1}{2} \text{ inch lbs.} \qquad (10)$$

In any two opposing wells, that is, if the hook-up is such that the one well is on its upstroke while the other is on its downstroke and their dead centers are simultaneous, the net maximum torque imposed upon the equipment may be determined by subtracting the counterbalance torque of each well from the maximum torque of the other well. If the wells are unequal, there will be two peak torques of unequal value. These two may be equalized by a counterweight properly located. In case one well is a beam well which opposes a back cranked well, the calculation for the beam well is quite the same, but with the rod line factors nonexistent.

This method of calculation appears cumbersome but it need not be. To that end a form has been devised which makes this calculation rapid and simple. Such a form is shown in Figure 1.

From this calculation all important parts of the equipment can be determined. From the maximum and minimum polish rod loads we determine the sucker-rod size. For long life in rod line wells, rod stress should be kept below 25,000 pounds per square inch, with a stress range of 20,000 pounds per square inch. Higher loads, of course, can be carried but only at the expense of decreased rod life. Corrosion will dictate larger rod sizes than those indicated. The polish rod load also determines the jack size.

From the maximum and minimum rod line pull (RLP), the proper rod line size may also be determined using the same stress values as before. From this also may be determined the reactions on swing, hold-ups, hold-downs, bearings, etc., according to the geometry of the layout.

From the peak torque and counterbalance torque the transmission size may be determined. This, however, depends upon the hook-up and the number of wells.

Two-well hook-up. (a) One on beam opposed by one on back-crank. In this case the two will seldom produce equal torque because of the absence of the rod line on the beam well, hence, the two peak torques will not be equal, also the beam well is often pumped with a greater length of stroke. Counterbalance torque equal to one-half the difference in these torques should be added to the beam well to equalize this difference.

(b) One on beam opposed by one on linkage from beam. The same method of calculating applies as above. The summation of the torques is not changed by this hook-up. Bearing pressures on the linkage are determined from its geometry by the ordinary method of force resolution. The mechanics of this method is another matter and presents grave difficulties in holding these forces in plane. It is not the purpose of this paper to discuss the mechanical merits of any system.

Three-well hook-up. (a) One unopposed well on beam and two opposed wells on back-crank. In this case the cranks should be placed in plane which brings the dead centers at 90 degrees. With this setup the back-cranked wells are opposed and calculated as before. The beam well may be calculated by the A.P.I. formula with 60 per cent of the polish rod load counterbalanced. Since the peak of the beam well comes at or near the dead centers of the back-cranked wells and vice versa, the maximum peak torque imposed will be the greater, resulting from one of the crank systems.

(b) One well on beam, two opposed wells on linkage from beam. In this setup the fact must be recognized that one of the rod line wells must peak simultaneously with the beam well. These two peaks become additive and will require a much larger transmission than a properly designed back-crank hook-up. The equipment must withstand the

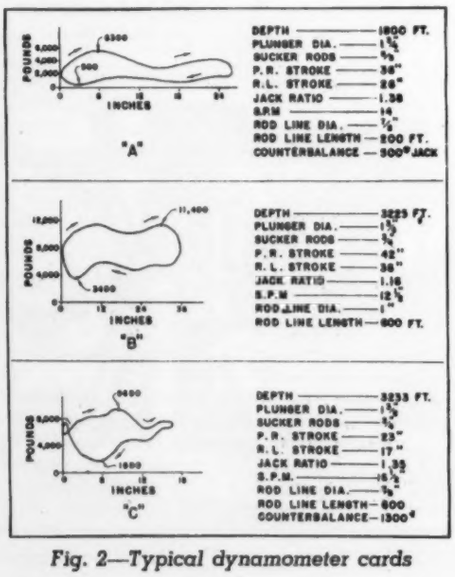


Fig. 2—Typical dynamometer cards

sum of the torques of the beam well with its counterbalance and that of the two opposed wells instead of the greater of the two, as in case (A).

Four-well hook-up.—Two opposed wells on each crank. In this case the cranks are at 90 degrees. This brings the peaks of one crank system to the dead centers of the other resulting in a smooth torque for four equal wells. The maximum peak torque will be the greater torque of the two systems. Counterbalance can be determined as before mentioned.

More than four wells on a hook-up. This usually means two rod-lines on one or more knock-offs or its equivalent and the peaks of these wells are directly additive. The calculations are quite the same, care being taken simply to make no mistake in determining which wells peak simultaneously.

The question now is to what extent may these calculations be depended upon? To what extent does practice agree with the theoretical calculations? To answer this, a series of dynamometer cards from various depth wells are shown in Figures 2 and 3.

The tabulation (Table 1) has been constructed to show the variation between the measured loads and the calculated loads.

TABLE 1—TABULATED RESULTS

Item	Ref.	RLP max.	RLP min.	Load range	Torque max.	CB torque min.
1	Fig. 2-A	5,300	500	4,800	69,000	6,500
	Calculated	4,620	1,030	3,590	57,000	13,400
2	Fig. 2-B	11,400	3,400	8,000	205,000	61,200
	Calculated	11,800	3,300	8,500	213,000	59,500
3	Fig. 2-C	9,600	1,600	8,000	81,500	13,000
	Calculated	9,630	2,780	6,870	81,700	23,600
4	Fig. 3-A	16,000	1,400	14,600	188,000	16,400
	Calculated	14,700	3,960	10,740	172,000	46,600
5	Fig. 3-B	19,800	4,800	15,000	218,000	53,000
		19,300	4,640	14,720	214,000	51,000

The measured loads are given first and the calculated loads given immediately under them. In the first item the greatest difference is found if considered on a percentage basis. This no doubt is partly due to the variation in rod line friction and to the counterbalance weight on the jack. Because of the comparatively small load, this effect produces a high percentage. In item 2 the agreement is very close. On the third item there is a disagreement on the downstroke. The card shows that the well is pounding fluid. Likewise on item 4 there is also some fluid pounding. Item 5 agrees almost exactly. It was known in all the instances shown that the fluid levels was very low as witness the indication of pound fluid, and also that there was little gas assistance. Many more instances could be cited but those shown here were selected as characteristic examples. In checking any such calculations against measures results, bear in mind that the calculations are based on pumping from bottoms with low fluid level and no gas help. If proper allowance for fluid level can be made in the calculation, it may be fairly compared to measured results. An exact agreement cannot be expected because all of the actual conditions cannot be incorporated in the calculation since they are not exactly known. Furthermore, the exact expression of the loads would involve calculations based upon vibration of the elastic system. So far such a method has not been devised and even if it were, it would probably be of little value since it could not supply the unknown conditions. The method suggested here has given very practical results.

Let us now consider the limitations of back cranking and the precautions required in making a setup.

Effects of speed.—Obviously every rod line has some limit of speed. The limit depends to some extent upon all the factors as calculated above. In general smaller plungers, heavier sucker-rods, large jack ratio and short rod lines make for more strokes per minute, however, heavier rods and large jack ratio will require an increase in the size of the rod line rods which in turn slows down the speed. Also because of rod vibration, synchronism may limit the speed. In multiple hook-ups each well has a separate tuning and it is difficult to avoid synchronous speeds. The calculation of these speeds is possible but beyond the scope of this paper.

Furthermore, the speed will be limited by some one well, usually by that having the longest rod line. Also speed increases the peak torque very rapidly since the counterbalance torques approach zero as the peak torques increase. High speed will tear up equipment very quickly if that equipment originally was selected for slow speed operation. For this reason rod line pumping is not to be recommended for wells with an increasing fluid production. It is better suited to a declining fluid production.

Pounding fluid.—While every one knows that a well should not be permitted to pound fluid, rod line wells are nevertheless often permitted to do so. This is largely because rod lines are best suited to slow producing wells that pump off. Pounding fluid produces sudden shock on the entire system due to the sudden unloading of the sucker-rod. The counterbalance torque drops to nearly zero as the rod line rods go slack. For that reason the equipment should always be on the generous side of the calculations. The methods of avoiding the pounding of fluid are to decrease the plunger size or the rod line stroke, the jack ratio or the strokes per minute, or some combination of these to attain a production rate equal to the well's capacity. In multiple well hook-ups the number of strokes per minute is controlled by the most productive well. The jack ratio is limited by the speed required and the design of the jack. The rod line stroke may be shortened by a multiplier or at the stroke post, if one is in the system. Decrease in plunger size seems to be the best solution. Pumps as small as 1-inch plunger diameter are available which give excellent results . . .

THREE-WELL HOOK-UP—*One unopposed on beam and two opposed on back-crank*

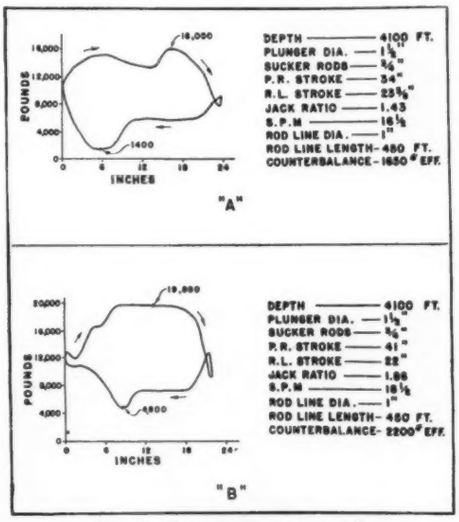


Fig. 3—Dynamometer cards

Counterbalanced jacks.—A counterbalance added to a jack often does more harm than good. This concentrated mass in the midst of an elastic system can, and often does, set up unwanted and harmful vibrations. Of course, it could not decrease the stress range in the rod line but it can increase it. It subtracts from the counterbalance torque which is often undesirable. It also greatly reduces the stroke per minute possible. There are a few instances where it is useful but these instances occur usually where there is a lack of proper proportioning in the original hook-up. As a rule it is safer to avoid counterweight on the jack.

Counterbalanced stroke posts.—Where it is necessary to equalize loads, the counterbalanced stroke post is much to be desired over that of counterbalancing the jack. The counterbalanced stroke post takes the concentrated mass out of the elastic rod system. The counterbalance mass cannot vibrate the rods. Furthermore, the counterbalanced stroke post can be adjusted to counterbalance either of two opposing wells when one is knocked off. This, of course, is very desirable when one well is off for a long period of time for servicing or if pumped off. If such a means is not provided and it is known that an opposing well will often be idle for long periods, allowance must be made for this increased torque in the selection of equipment. Under such conditions the equipment must handle the peak torque of the well without benefit of counterbalance torque. The counterbalanced stroke post if properly operated avoids unnecessary loads.

Prime movers.—It will be noted that in the foregoing the equipment is determined by either force or torque and horsepower is not mentioned. Horsepower plays no part in the determination of any of the equipment save only the prime mover. The prime mover should have sufficient flywheel inertia to average out the peaks and, therefore can be predicated upon the average horsepower required. A simple formula which is commonly used gives quite satisfactory results and is:

$$\text{Hp.} = \frac{\text{Bbls./Day} \times \text{Depth}}{66{,}000}$$

As previously pointed out, the barrels per day must be the maximum rate of pumping at any instant.

Conclusion

It is hoped that this paper may arouse interest in a further investigation of this subject to the end that a more uniform and satisfactory method of selecting, designing, and operating rod line equipment will be attained through a better understanding by all concerned of the loads imposed, that we may deal with facts instead of hopes, fancies and fairy tales, and apply this equipment where it is most economical and avoid its use where it is sure to be disappointing.

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Excerpt from Munger Oilogram of April 13, 1938: *"A very interesting phase of Continental Oil Company's KCL A-2 well is cited in the fact that, while passing through the present producing horizon, core recovery was poor.* **However, the industry's greatest aid today, the electrical logging device, revealed the possibilities of the zone that the cores missed, AND TO SCHLUMBERGER MUST BE GIVEN A LARGE MEASURE OF CREDIT FOR THE SUCCESSFUL COMPLETION OF THE WORLD'S DEEPEST PRODUCER."**

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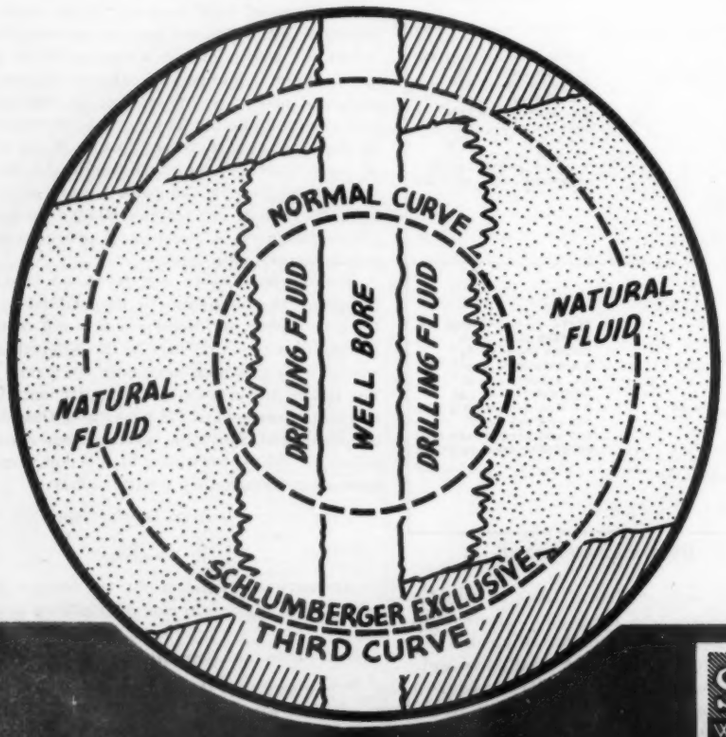

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Propane Treatment of Lubricating Oil Stocks

By M. B. COOKE, EARL PETTY and PAUL BARTON
Alco Products, Division of American Locomotive Co. Sun Oil Co.*

The treatment of petroleum and its intermediate products for the purpose of obtaining a useful article of commerce is a very old subject but one which continually is the target for technologists. The amount of interest in treating petroleum fractions is exemplified by the voluminous patent literature as well as books devoted to the subject. This is indeed a healthy condition for where there is dissatisfaction there is at least the hope that something constructive will result.

It is unnecessary to go over the developments of distillation and lubricating oil manufacture by conventional methods in view of the many excellent sources of these data. It may be opportune, however, to look back a few years for the inspiration of the work and processes which is the subject of our immediate interest; "propane treatment of lubricating oil stocks." . . . .

The nearest approach to our modern applications of solvent refining is the use of diluent naphtha in cold settling and later in the separation of wax by centrifugal means. The old methods of removing both resins and asphaltic compounds by acid and clay treatment was based upon the known facts of the case. Asphalts can be removed by acid treatment as well as some of the resins. Upon filtering the acid treated oil, resins are removed by the clay and can be recovered by extracting the clay with chloroform. This is one distinguishing characteristic between resins and asphalts, i.e., the resins are adsorbed by fuller's earth from a warm petroleum ether solution of asphalt.[1] The foregoing discussion is more applicable to mixed base oils than to oils of Pennsylvania or paraffin base in that in the latter there is not a large amount of asphalt, and this permits lubricant manufacture from crude oil residua whereas the mixed base and asphaltic oils are first distilled to throw out the major portions of the asphalt. The fact remains that solvents probably do a better job of asphalt and resin removal than did the old combination of distillation, acid treating and clay finishing.

Dilution With Naphtha

The use of petroleum naphtha for dilution of lubricating stocks for aiding in the removal of wax by cold settling was the logical step toward solvent deasphalting and dewaxing. It was learned from this work that the lighter the naphtha the better the settling results. The same was found in the centrifugal dewaxing.

The introduction of propane was a step forward in that it does the job more efficiently than do the higher homologs butane, pentane, and hexane. It is then quite in order to find that the first application of propane was to throw down asphalt as a precipitate. Petroleum ether and propane, therefore, are more closely allied in the results they produce when mixed with lubricating oil stocks than any other two solvents with which we are familiar. They differ in degree as to the results accomplished. An important result is the separation of the higher lube fractions which cannot be obtained by distillation from asphalt by commercial means.

The introduction of propane into the lubricating oil manufacturing processes has resulted in other advantages with which the most of us are cognizant. The use of the diluent, in this case, as the refrigeration medium, needs no introduction. Suffice to say that the present competitive schemes or processes for the dewaxing of lubricating oil stocks revolves about this multiple use of the solvent, i.e., (1) as a diluent to reduce viscosity and (2) as a refrigerant and (3) as a precipitating agent or (4) as various combinations of the three items mentioned under controlled conditions. The recognized processes for propane deasphalting, deresining, and dewaxing appear to differ mainly in the autorefrigeration usage and the steps employed in the process.

One advantage of propane dilution is the fact that dewaxing is readily accomplished in its solution. Another attractive feature of propane is that it is a refrigerant and can be liquefied, cooled, expanded and will produce refrigeration down to very low temperatures. Since it can be evaporated from its solutions to produce refrigeration, there is no loss of heat transfer through metallic walls of heat interchangers, i.e., heat is removed directly from the solution.

Last but not least is the fact that the larger refiners, as a rule, are natural producers of propane and they do not have to depend upon or pay profits to an outside source of the diluent-refrigerant. In some cases, the refiner, through other unrelated refining operations, produces liquid propane and can regain some of the energy expended in rendering it liquid, by expanding it to do work and produce refrigeration at the same time. The smaller refiner can buy the solvent at reasonable prices in the open market and it does not become a contaminant in his vapor recovery system and losses go into fuel.

For various reasons, some of which will be mentioned, propane is the most desirable low molecular weight hydrocarbon to use in this work. Asphaltic residua and wax bearing residua are handled in the same manner but the latter begins to precipitate wax from the propane-oil phase upon mixing with propane, generally at room temperature, depending upon the solvent ratio and the wax content. As the temperature is lowered, additional quantities of wax precipitate. The commercial criterion is that temperature at which the pour and cloud test specifications of the finished oil are satisfied. Another reason for propane's popularity is because it is available in most locations and it is of no use for motor fuel. Butane, while it has quite satisfactory solvent qualities, is utilized both in motor fuel and in other industries so that the material is too valuable to use as a simple solvent.

Going to the lower molecular weight petroleum gases, ethane, for example, exerts too high a vapor pressure to make its use practicable in reasonably priced equipment. It so happens that the atmospheric boiling point of propane is as low as it is necessary to go to accomplish the results desired. It is not surprising therefore to find that propane has forged ahead during the last few years to a position where it is a serious competitor to accepted refining methods and materials. There has been considerable discussion of propane treating during the past few years. The more important references are listed in the bibliography for convenience.

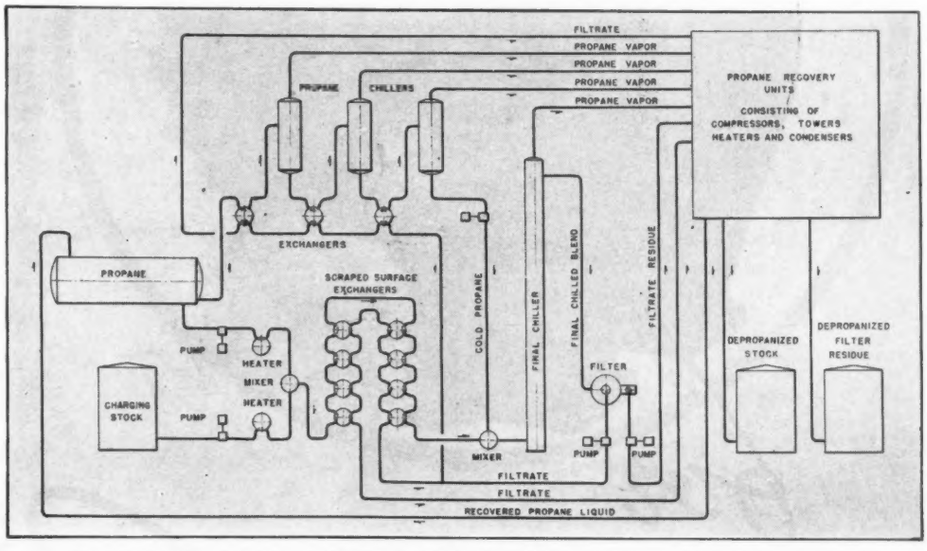

Fig. 1—Schematic flow diagram of the Sun-Alco propane dewaxing process

The process which we will now describe differs from those described in the literature in two essential respects; (1) continuous chilling as opposed to batch chilling and (2) simultaneous deasphalting, deresining, and dewaxing are accomplished.

The Sun-Alco process uses an optimum proportion of propane to obtain the final result on the particular stock in question to reduce its viscosity and employs indirect refrigeration on the mixture to a point where approximately 90 per cent of the refrigeration duty has been accomplished, only evaporating propane to attain the remaining 10 per cent of refrigeration. In the process, propane is autorefrigerated alone and the cold propane is

*Paper presented at 35th semiannual meeting of the National Petroleum Association, Cleveland, Ohio, April 13, 1938.

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injected at the 90 per cent point of refrigeration. The reason we have maintained our indirect chilling process is to be found if one studies critically the crystallization of paraffin waxes and the effect of extraneous or other compounds. The inter-effect of proportions of propane oil and wax in the cooling stage, if properly controlled, results in great speed of chilling without the formation of minute crystals which filter poorly. Our continuous process is subject to strict control. The range of control is such that in some combinations results are obtained which are impossible in batch systems.

The success of propane dewaxing depends upon the rate of wax separation, so much so that we are not interested in autorefrigeration exclusively as a chilling means. This is due to inherent limitations in the autorefrigeration process.

The reasons for the development of different systems of propane treatment of lubricating stocks are probably best understood if we consider the two fundamental types of stocks upon which the greater proportion of propane treatment is bound to be associated. These two types are represented by Pennsylvania and by Mid-Continent lubricating stocks, the latter including any naphthenic stocks carrying wax. With the two main stocks defined, it is not unusual to have groups of technologists working on separate processes. This is actually the case.

Dewaxing Distillates vs. Residuum

The two problems in connection with the two representative types of crudes, Pennsylvania and Mid-Continent are essentially problems inherent in treating of residua and those of treating distillates. The Mid-Continent problem is one of working with topped crude as raw material whereas the Pennsylvania problem involves the treatment of Pennsylvania wax distillate amounting to 12-15 per cent of the crude as well as Pennsylvania steam refined stock amounting to 18-20 per cent of the crude, with the possible alternate of handling a 38 per cent reduced Pennsylvania crude.

The gains from the utilization of propane in treating Pennsylvania oils are mainly due to larger yields of lube oil and the enhanced decolorization resulting in lower filter costs. If this cannot be done, the attraction for propane is limited. The Mid-Continent operation, however, is one where vacuum distillation for removal of asphalt is replaced by propane treatment, eliminating to a large extent the decolorizing by acid and replacing it by solvent treating such as furfural, phenol, Duo-Sol, or nitrobenzene or sulfur dioxide, etc. At the same time, possibilities of new products obtainable by this process are opened up.

The flow diagram illustrates the main operations and principal vessels. As an example of our operation on topped crude, we make a low ratio blend of oil and propane (for example, one to one) which is pumped through a mixing device. The blend is passed through a scraped-surface type of exchanger such as a conventional wax distillate type double-pipe chiller. The mixture is chilled to —25° F. or lower and is then mixed with additional propane which has been chilled to —45° F. to bring the ratio to five parts of propane to one part of oil. The chilled mixture is then filtered. The asphalt acts as a filter aid and high rates are obtained.

Tables 1, 2 and 3 give the distillation break-up on (1) 36 per cent topped Mid-Continent crude, (2) dewaxed, deasphalted Mid-Continent crude, and (3) filter residue. These tables show that:

1. The topped crude or residuum carries all the nonviscous and viscous neutral from Mid-Continent crude and the overhead fractions are good stable colors, show a good oxidation, and low carbon residue.

2. A large quantity of light color, sweatable-waxes can be distilled off overhead (over 50 per cent).

3. It does not degrade the oils to redistill them after propane dewaxing. The dewaxed, deasphalted oil can be either solvent treated before fractionating, or individual cuts may be solvent refined thus producing the maximum per cent of light body, light color oils at the lowest treating, distilling, and filtering costs.

From the average lubricating oil plant which would be built up around propane dewaxing and deresining, there is usually no possible commercial disposal of all the petrolatum to refined waxes. Some of it must be burned or cracked. It appears that the most economical disposal of the wax and asphaltic material is in one product and then by-product finishing equipment can be installed for making whatever amount is required into finished waxes or finished asphalts. The concentration of waxes in the filter residue makes a great difference in its distillation characteristics.

Particular attention is invited to the fact that the process is continuous and there are no surge tanks for blend receiving, filter charge or asphalt settling. The process is a tubular system through the chilling up to the filter supply. The simple flow of the process in addition to the high rate of separation of wax and cake more than justify the residuum process in comparison to a distillate system or a deasphalted residuum system for mixed-base Mid-Continent crudes.

Pennsylvania Lubricating Stock Operation

The application of the Sun-Alco propane process to Pennsylvania type oils differs from the Mid-Continent operation in that either a Pennsylvania long residuum amounting to 38 per cent of the crude oil can be used as charge stock or a wax distillate may be taken from a fractionating tower and a steam refined cylinder stock made as a residue. In the latter case it is necessary to either operate on wax distillate and then on cylinder stock or build a plant with parallel flow of the two charge stocks. The preferable operation would be the latter and this will therefore be discussed in some detail. Pennsylvania crude is fractionated into a wax distillate containing the neutrals and the bottoms consisting of steam refined stock which run to separate storage tanks. If the conventional pressable wax distillate is carefully fractionated into 10 per cent cuts, the characteristics would be somewhat as shown in Table 4.

The material indicated in Table 4 can be run as a whole fraction but is preferably cut at the 40 per cent point since it is not highly desirable to propane treat materials of low viscosity containing waxes of low melting points such as are contained in the first four 10 per cent cuts. In other words, the distillate we prefer to treat shows approximately a Saybolt viscosity of 100 at 100° F. instead of the conventional 70 Saybolt at 100° F.

This wax distillate is charged to conventional wax distillate type chillers with a propane dilution of only 10-20 per cent (volume). Upon leaving

(Continued on Page 70)

TABLE 1—MID-CONTINENT TOPPED CRUDE, 36 PER CENT

Cut—	Gravity	Flash	Fire	Viscosity 100	130	160	210	P.T.	Color	°F. Bulb M.P.	M.E.K. per cent par.	M.P. of par.	Per cent crude
10 per cent	33.8	240	260	40	*37	...	...	+ 30	1 +	Liquid	1.0	...	3.6
20 per cent	30.8	335	360	56	*45	...	...	+ 60	1½—	Liquid	12.7	108-110	3.6
30 per cent	28.8	355	420	85	59	...	*39	+ 85	1¾	80-	17.4	116-118	3.6
40 per cent	27.1	405	490	*166	93	...	45	+ 105	2¾	96-98	19.5	130-132	3.6
50 per cent	25.7	425	510	*253	...	79	50	+ 115	3¼	104-106	19.1	136-138	3.6
64.5 per cent	24.1	485	565	*590	...	133	66	+ 120	4 +	116-118	19.4	140-142	5.22
Btms.	13.7	615	695	...	...	5176	1130	+ 110	...	...	...	...	12.78
Chg.	23.1	235	400	...	245	132	68	+ 105	...	104-106	17.0	132-134	36.00

Cast and color—good. *Extrapolated from the A.S.T.M. chart.

TABLE 2—VACUUM DISTILLATION AND TEST DATA ON DEWAXED-DEASPHALTED MID-CONTINENT CRUDE

Cut—	Gravity	Flash	Fire	Viscosity 100	130	160	210	P.T.	Color	A.S.T.M. Cloud	Oxid.	Con. carbon	Per cent Yield	Per cent Crude
10 per cent	33.7	220	245	41	37	...	...	— 5	1—	+ 4	...	...	5.38	1.937
20 per cent	30.3	300	330	40	42	...	...	0	1+	+18	...	...	5.38	1.937
30 per cent	26.8	340	390	77	54	...	*37	—25	1½+	+14	...	...	5.38	1.937
40 per cent	25.0	385	440	157	*86	...	42	—10	2	+ 8	59.6	0.01	5.38	1.937
50 per cent	23.5	430	480	323	*147	...	50	—20	*2½	— 4	65.6	0.02	5.38	1.937
60 per cent	†22.1	450	530	784	*300	...	65	—25	3¾	—18	64.4	0.14	5.38	1.937
70 per cent	21.3	485	560	*1315	453	...	*78	—20	4¼	—22	54.0	0.46	5.38	1.937
75 per cent	20.6	490	580	*2700	*810	...	105	— 5	5½	...	...	...	2.69	0.969
Btms.	16.1	605	680	...	...	3571	1087	+60	...	...	...	Ash	13.45	4.842
Chg.	22.9	310	355	428	188	...	56	0	...	...	...	Trace	53.8	19.370

Cast and color—good. *Extrapolated from the A.S.T.M. chart. †Extrapolated from the V.G.C. chart.

TABLE 3—VACUUM DISTILLATION AND TEST DATA ON FILTER RESIDUE

Cut—	Grav.	Flash	Fire	Viscosity 100	130	160	210	P.T.	°F. Bulb M.P.	Per cent par. M.E.K.	M.P. of par.	Per cent charge
1	25.5	275	300	45	...	...	...	+ 65	...	27.5	102-104	10.0
Btms. No. 1	...	...	...	...	...	...	...	...	132-134	40.1	134-136	10.0
2	34.6	335	405	...	49	...	36	+ 105	94-96	45.7	116-118	8.0
Btms. No. 2	...	...	...	...	...	...	...	...	138-140	39.9	138-140	10.0
3	32.9	395	455	...	59	...	39	+ 115	108-110	51.0	126-128	6.2
Btms. No. 3	...	...	...	...	...	...	...	...	144-146	37.0	140-142	10.0
4	...	435	495	...	...	...	42.5	+ 120	116-118	50.3	132-134	4.6
Btms. No. 4	...	...	...	...	...	...	...	...	150-152	35.8	146-148	10.0
5	...	445	530	...	...	...	48	+ 120	124-126	50.2	138-140	3.1
Btms. No. 5	...	...	...	...	...	...	...	...	154-156	33.9	146-148	10.0
Chg.	22.0	360	450	...	...	246	111	...	...	...	...	...

The bottom cuts were run by the M.E.K. method of analysis. Total distilled, 31.9 per cent; total bottoms, 50 per cent; bottoms left, 18.1 per cent.

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MISSION PISTON

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SAVES MONEY

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of changing seats often.

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formerly invested in continuously buying new piston bodies.

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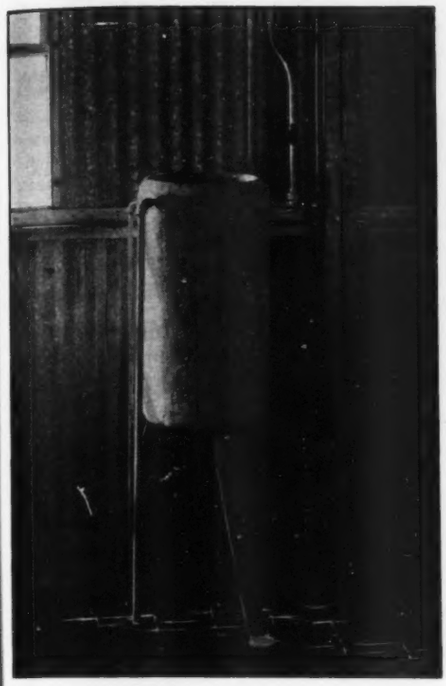
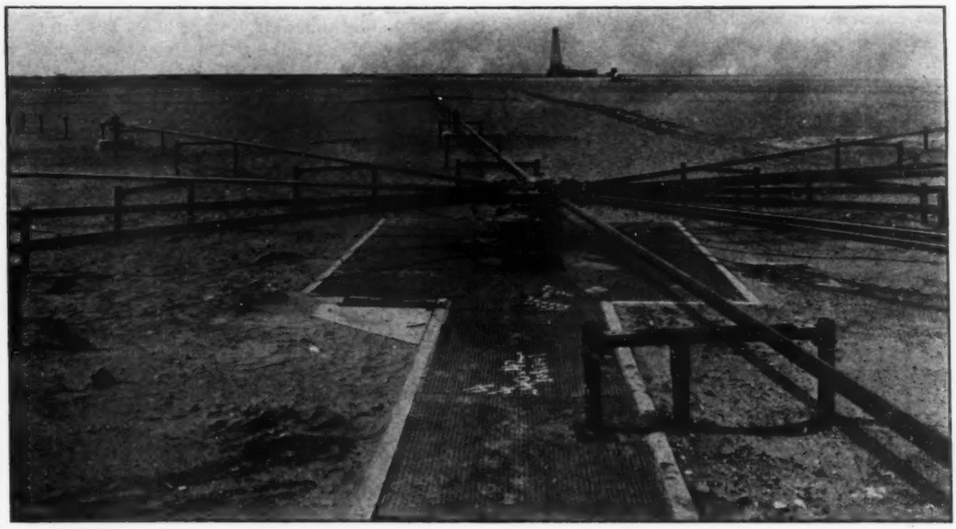


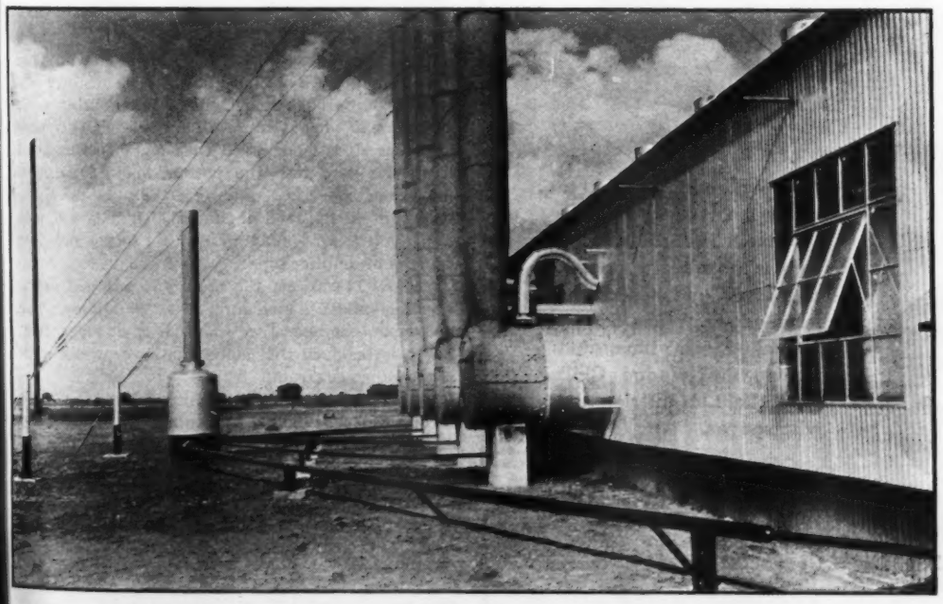
Vat for Vapor Pressure Tests

An oil company operating a natural gasoline plant in the Billings field of Noble County, Oklahoma, has installed the equipment shown here for making vapor pressure tests (at 100° F.) of its product. The vat was made from a 5-gallon paint drum with 1½ inches of insulating material plastered on the outside and a half-inch steam coil incircling the inside. Sufficient steam is run through the coil to hold the water bath near the desired temperature. Thus the test may be made quickly and without leaving the pump room.

Central Power Driveshaft Covered With Steel Plate

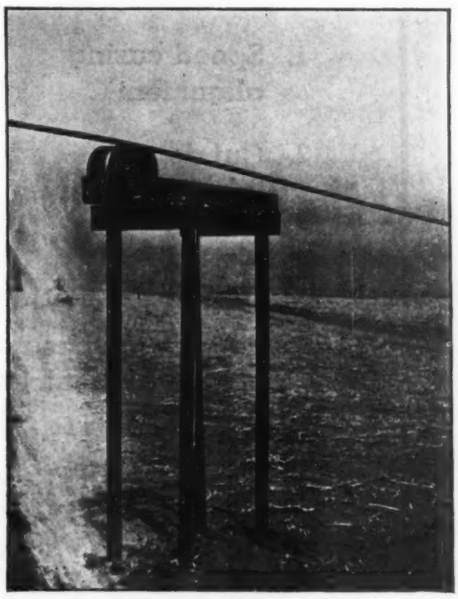


In this heavy duty geared power installation in the Panhandle area of Texas, the operators have carefully fitted steel plating over the cement trench for the driveshaft extending out from engine house. Steel plating has also been fitted around the top of the geared power unit itself as shown. This is a safety measure, as well as a protection to the machinery from severe weather and dust storms. The steel plating is readily removed when desired.



Centralized Blow-Off Vessel for Boiler Battery

A novel blow-off system for a battery of boilers has been developed by a large oil company operating natural gasoline plants on the Gulf Coast of Texas. As shown in the accompanying photograph, all blow-off lines from the boilers are lead to a common vessel made from a piece of large pipe with a smaller piece of pipe flanged to the top to form a stack. The steam is exhausted 10 feet above ground so that any danger of workmen being scalded is removed.



Single Rod Hold-up

An oil company operating several powers in Gray County, Texas, over rolling country where it is necessary to use a number of rod hold-ups, has adopted the type hold-up shown here. A short piece of 6-inch pipe, grooved to hold the rod line in place, acts as a roller which moves in a steel trough 36 inches long. Thus ample room is allowed for the pull-rod strokes. The trough is supported by four pipes set in concrete bases. A number of these are used to change angles of the pull rods, being placed to conform with the raises and dips of the ground.

Deepest Well

(Continued from Page 55)

float-shoe and a Baker duplex cement whirler collar were used. A Santa Fe casinghead, made by Regan Forge & Engineering Co., was used.

Drillpipe

In drilling down to 5,512 feet a string of 9⅝-inch Spang Chalfant internal-upset drillpipe was employed. From 5,512 feet down to 11,584 feet, 4½-inch 16-pound National internal-flush external-upset, Grade D, Range 2 drillpipe, with Reed 4½-inch shrink-grip internal-flush tooljoints, was used. From 11,584 feet to bottom, 3½-inch 16-pound Youngstown internal-flush external-upset, Grade D, Range 2 pipe was used with Hydril tooljoints. A 4½-inch by 40-foot Hydril octagonal kelly with a 2-inch bore was used.

Instead of using regular bushings to drive the kelly, National Supply Co.'s Ideal Type BL drill-stem attachment was employed. This is bolted together around the kelly so that it remains on the kelly at all times. It projects above the top of the rotary table to give greater length of contact between its liners and the kelly.

The traveling-blocks included a Baash-Ross four-sheave and an Amsco five-sheave block, which was strung up at 12,600 feet when 10 lines were needed to handle the drillpipe. At the top of the derrick was a Regan double-deck crownblock. An Oil Well Supply Co. swivel with Timken bearings was used throughout the drilling. A Chiksan steel rotary hose was employed.

Chains used on the rotary equipment were Rex Champion Chabelco, made by Chain Belt Co. Two hooks were used, one an Ideal 9-inch spring casing-hook, the other a Byron Jackson triplex hook. A Nordstrom full-opening casing-valve was used, and a Regan blowout preventer.

Wire Lines

A total of nine drilling rigs were used. These were made up of American 1⅛-inch Lang-lay and Leschen 1⅛-inch regular lay. Most of these lines were not used for a long period, because in the interest of safety they were changed sooner than was necessary. For this reason the wire-line record has little meaning in most cases. An E. M. Smith Grizzly wire-line spooler was used to guide the lines onto the drum.

Bits

In drilling from zero to 15,004 feet, 191 bits were used, and many of these had remarkable runs. Seventy-seven of these were core-bits and core-heads. From 11,584 feet to the total depth, 3 junk traps were used, 1 Zublin bit for fishing, 59 Hughes 6-inch bits, 35 Hughes 6-inch core-bits, 4 Reed 6-inch core-bits, 17 Hughes 5⅞-inch core-bits, 2 Reed 5⅞-inch core-bits, and 3 Baker 5⅝-inch core-bits.

Mud was an item of great importance. For preventing blowouts from the high-pressure gas shows, Baroid, manufactured by Baroid Sales Co., and Colox, manufactured by George S. Mepham Corp., were used. After the long string of casing had been set, and there was no more trouble due to gas, a very thin mud was used, consisting of Aquagel, made by Baroid Sales Co., and water. Two McNeely vibrating mud-screens, made by Vernon Tool Co., were used to keep the mud free from shale cuttings and from sand. These were equipped with 100-mesh screens.

For treating gas-cut mud a riffle-box was used, which had been designed by the Continental production department. This was about 20 feet long, 2 feet wide, and had wooden baffles in its bottom. The box was inclined at a 30-degree angle from the horizontal, and the gas-cut mud was made to run down it. It proved efficient in freeing the gas bubbles.

The one serious fishing job is believed to have been caused by caking of mud above the bit. This occurred at depth of 11,584 feet, where a sand body was encountered unexpectedly while drilling with exceptionally heavy mud. Due to the great hydrostatic head, it is believed that water was forced from the mud into the porous body, leaving a hard cake on the wall which proved to be too thick to permit withdrawal of the tools. The result was a difficult fishing and sidetracking job, which lost 44 days of drilling time.

Below 14,000 feet the mud was pumped down the hole under a pressure of 1,350 pounds. The bottom-hole temperature was 268° F. at 14,000 feet, but it is believed that some shallower wells have reached hotter strata.

In spite of the costly fishing job, the world's record well was drilled to a total cost of less than $300,000.

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WEDGE Chill Rings save time and money in welding casing strings because they:

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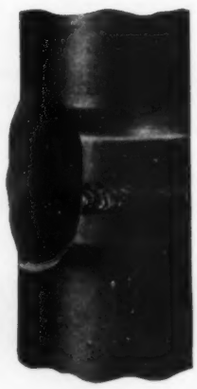
3. **Stop loss of weld metal**
4. **Reduce the hazard of human inefficiency**



The Wedge Ring is split to allow it to spring and adjust itself. The inside of the ring is absolutely smooth and level, and has chamfered edges. When casing is belled, as illustrated above, the Wedge Chill Ring offers no interference whatsoever.

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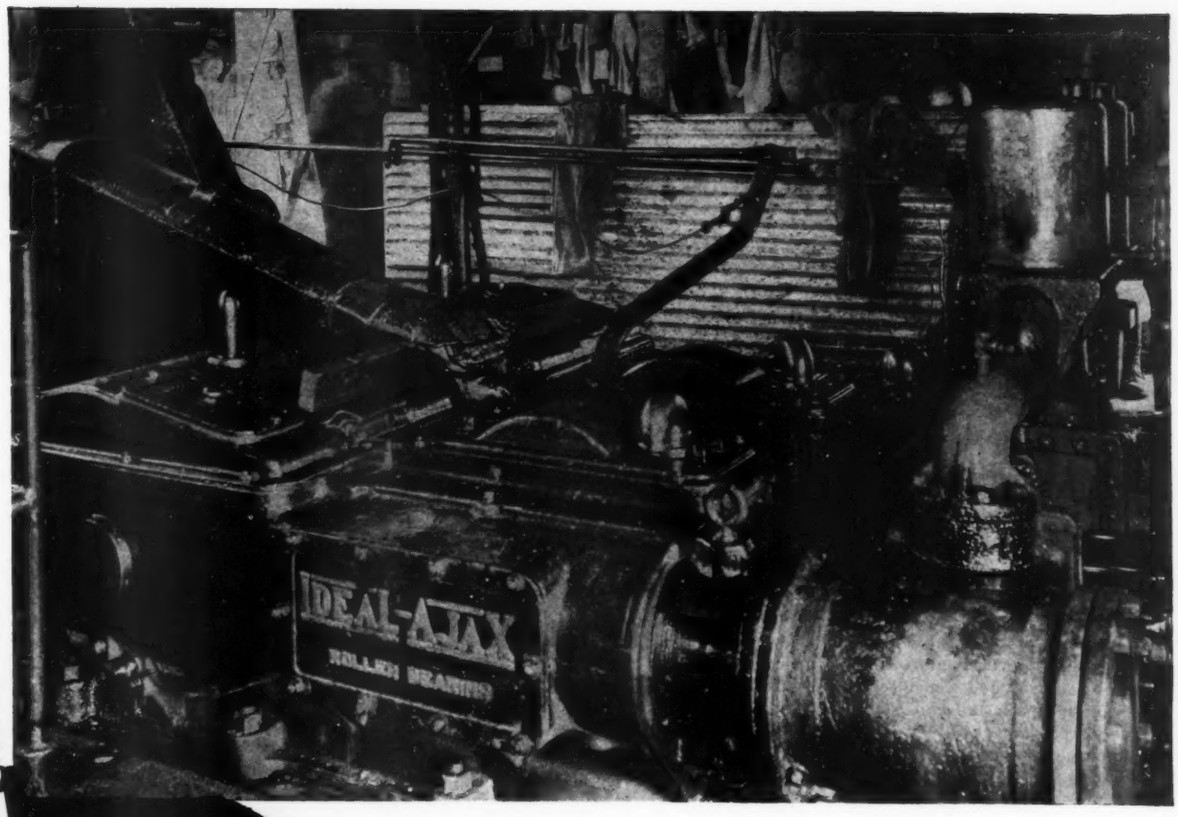
Canadian Conference on Alberta Crude for Ontario

CALGARY, Alberta. — Representatives of the Alberta government, Imperial Oil, British American Oil Co., and Alberta Petroleum Producers Association at a conference recently arranged to furnish to the railways some time in May full information as to the quantity of Turner Valley crude available for shipment to Ontario if satisfactory freight rates were secured.

It is expected that by May the crude potential will be materially increased through completion of new producers, and completion of the new Royalite pipe line will permit a higher proration quota.

THE WORLD'S DEEPEST WELL



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Service Conditions Determine Type Alloy or Steel Used in Refinery

By W. L. NELSON

The great variety of service conditions that are encountered in petroleum refining has necessitated the development of a large number of special alloys and special steels. The general conditions may be classified as (1) high-temperature service, (2) high-strength service, (3) corrosive service and of course (4) all possible combinations of the other three, but due to the multiplicity of conditions that arise, there cannot be a single material or even a group of materials that is universally applicable to any one of the above services. Then too, the consideration of cost can never be deferred because for each condition of service there will be excellent materials that are too expensive and likewise materials that are extremely cheap but which in the long run are costly because of frequent replacements.

For these reasons, the most helpful type of discussion of metals is one which approaches a particular set of conditions, such as a definite crude oil, definite product requirements, and particular equipment; and for these conditions draws a direct comparison between the performance of various materials and their costs. One excellent discussion of this sort is the paper, "Metallurgy of Petroleum Refining Equipment" by E. S. Dixon.[1] The refiner will find many useful comparisons in this paper particularly with regard to how to analyze his own plant conditions and thus select suitable materials for each item of equipment in his plant. This brings us directly to the real problem of the refiner—he must study his own plant and make his own selections by plant-scale experiment. In this study he can be assisted by laboratory tests, by the experience of other refiners such as that given in E. S. Dixon's paper, and by advice from metal manufacturers, but in the end he must meet the problem himself by applying and studying the proposed materials in his own plant. As a partial attempt to classify the materials that are available, the following discussions are mainly lists of alloys that have been used for certain types of refinery service. Obviously, the best material cannot be selected for each service but a general comparison of costs and of performance has been included. Likewise, the compositions that are given are only a guide and there are many suitable alloys of slightly different composition.

Some of the most important phases of metal applications in refining may be grouped as follows:

1. *Pipe still tubes:* Extreme temperature and pressure; high-temperature oxidation on outside and sulfide corrosion on inside.

2. *Furnace castings (exposed):* Extreme temperature and violent high-temperature oxidation.

3. *Dewaxing:* Brittleness at extremely low temperatures.

4. *Tubular exchangers:* Sulfur and/or acid corrosion, and corrosion by water.

5. *Vessels and fittings:* High-pressure, internal corrosion and high-temperature.

Many other equipments and phases of corrosion

Intricately shaped assemblies for corrosion-resistant service at high temperatures are best fabricated by welding columbium-bearing 18-8 stainless steel, according to L. O. Koven & Brothers, Inc., who made this cracking still for an oil refinery

are worthy of attention but space does not permit a discussion of all of them. Perhaps of greatest importance is plain rusting or low-tempereture oxidation at atmospheric temperatures by exposure to the atmosphere. However, little can be done for this serious type of corrosion by the use of special alloys or steels because the cost is too great and hence with the exception of sporadic experiments with the use of aluminum and related alloys the industry has had to be content with coatings of paint, asphalt, etc.

Tubes and Bends

The definitely useful chemical elements that are used in seamless pipe still tubes are molybdenum, chromium and silicon and it seems by recent reports that aluminum may also assume a position of equal importance. Molybdenum lends strength and resistance to stretching or creep at elevated temperatures and is beneficial in the amount of 0.5 per cent and possibly up to 1.5 per cent in some instances. Chromium is useful in combating oxidation by high-temperature furnace gases and in amounts exceeding 5 per cent it definitely retards the corrosive action of sulfur compounds. Recent installations of tubes containing aluminum indicate that a small amount (0.7 per cent) of this element is powerful in combating sulfide corrosion. Silicon aids in decreasing both scaling and sulfide corrosion but it is less powerful than the above and cannot be used in large amounts because it tends to alter other useful physical properties of the steel. All of the seamless tube materials listed in Table 1 have been successfully used and they show no marked deterioration during service except a gradual bulging and sagging, and of course thinning or pitting by corrosion. At one time some 18-8 chrome nickel steels became brittle during service and failed suddenly with disasterous results but this difficulty seems now to have been successfully overcome by alloy manufacturers.

Furnace Castings

The castings that are used in furnaces for supporting pipe still tubes are subjected to exceedingly high temperatures. Under these conditions they scale so rapidly by oxidation that this becomes the primary consideration and even strength becomes relatively unimportant. Furthermore, the strength declines to such low values at temperatures of 1,200 to 1,700° F. that a somewhat bulky design is always necessary. Some widely used casting materials are given in Table 2. One of the main difficulties with furnace castings is brittleness after service and this property should be carefully checked with manufacturers. Brittleness is not usually troublesome unless the carbon content is high.

Low-Temperature Steels

In the development of dewaxing processes such low temperatures as minus 50° F. are encountered. For many years such temperatures gave little trou-

TABLE 1—SEAMLESS STEEL PIPE STILL TUBES—COMPOSITION, SERVICE AND COST

No.	Name—	Approx. composition,* per cent— Chromium	Molybdenum	Silicon	Others	Design strength† lb./sq.in.	Relative cost	Relative corrosion resistance: Scaling	Sulfide
1	Killed carbon	0	0	0.2	...	4,000	1.0	Poor	Poor
2	Carbon moly	0	0.5	0.3	...	12,000	1.4	Poor	Fair
3	Silmo	0	0.5	1.5	...	6,400	1.5	Fair	Fair
4	Alcrosil 1	1.0	0.5	1.2	0.7 Al	‡10,000	...	‡Fair	‡Good
5	D M	1.25	0.5	0.75	...	18,000	1.9	Fair	Fair
6	Croloy 2	2.0	0.5	0.5 max.	...	9,300	2.0	Fair	Fair
7	Sicromo 2	2.0	0.5	1.25	...	9,000	2.1	Good	Fair
8	Sicromo 2½	2.5	0.5	0.75	...	9,500	2.2	Fair	Fair
9	Sicromo 3	3.0	0.5	1.25	...	11,000	2.3	Good	Good
10	Croloy 3	3.0	1.0	0.5 max.	...	‡9,000	2.4	Fair	Good
11	4-6 Chrome moly	5.0	0.5	0.2	...	8,000	3.1	Fair	Good
12	Alcrosil 5	5.0	0.5	1.5	0.7 Al	‡8,000	...	‡Good	‡Excellent
13	Croloy 9	9.0	1.5	...	...	9,000	7.8	Excellent	Excellent
14	18-8 Chrome Ni	18.0	0	...	8.0 Ni	17,000	10.6	Excellent	Excellent

*The carbon content is universally low, ranging from 0.07 to 0.25 per cent. All of the steels contain a small amount of manganese as a general cleansing agent to promote soundness.

†Based on approximate creep strength at 1,000° F., allowing 1 per cent deformation in 10,000 hours of service.

‡Estimated by initial plant service of over two years. Laboratory tests have been in progress for many months but are not yet complete.

[1] Refiner & Natural Gasoline Mfg., Vol. 16, No. 10, page 448.

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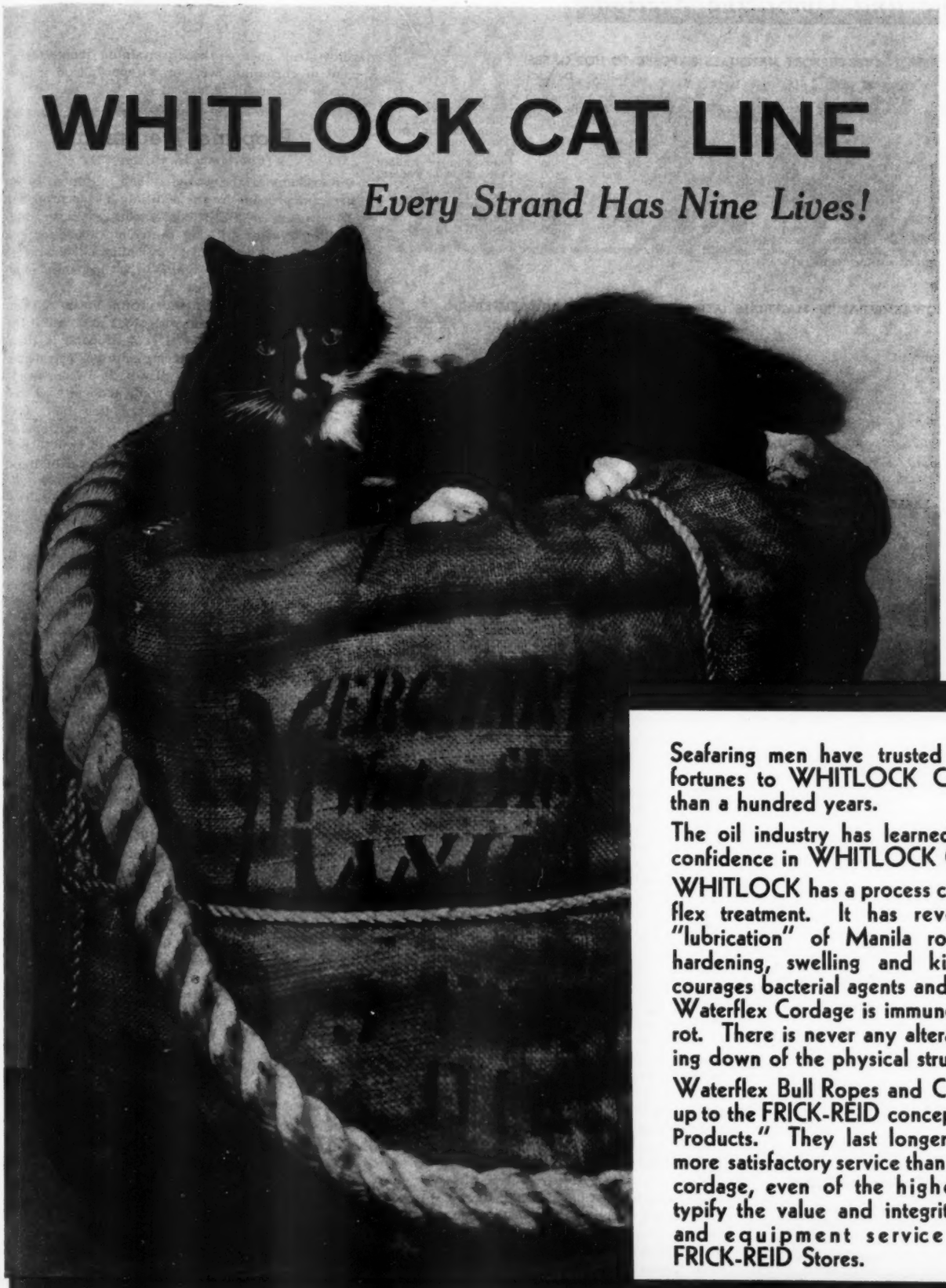
Every Strand Has Nine Lives!



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WHITLOCK has a process called the Waterflex treatment. It has revolutionized the "lubrication" of Manila rope. It prevents hardening, swelling and kinking. It discourages bacterial agents and fungus growths. Waterflex Cordage is immune to dry and wet rot. There is never any alteration and breaking down of the physical structure.

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TABLE 2—TUBE-SUPPORT MATERIALS (EXPOSED TO HOT GASES)

No.	Casting material—	Approx. composition, per cent: Total carbon	Silicon	Chromium	Nickel	Relative cost	Scaling temp.† (approx.) °F.	Design‡ strength (approx.) lb./sq.in.	Position in pipe still
1	Plain cast iron	3.2	1.5	0	0	1.0	600	low	Convection and insulated end-supports
2	Meehanite iron	3.0	1.1	1.0	0	1.3	900	low	Convection
3	Nickelchrome iron	3.2	1.5	0.75	2.0	‖1.4	900	low	Convection
4	Ni resist iron	2.9	1.5	3.5	*14.5		1,200	200	Convection or radiant
5	8 Chrome steel	0.2	..	8.0	0	‖3.7	1,300	400	Convection or radiant
6	13 Chrome steel	(§)	..	13.0	0		1,400	500	Radiant
7	18 Chrome steel	(§)	..	18.0	0	‖4.0	1,500	300	Radiant
8	18-8 Chrome nickel	(§)	..	18.0	8.0	‖4.4	1,600	400	Radiant
9	24-12 Chrome nickel	(§)	..	24.0	12.0	‖4.8	1,900	300	Radiant
10	28-10 Chrome nickel	(§)	..	28.0	10.0	5.0	2,000	300	Radiant

*Also 6 per cent copper or otherwise 20 per cent nickel.
†Oxidizing atmosphere such as found in petroleum stills if the fuel contains a normal percentage of sulfur.
‡Based on creep-strength at scaling temperature.
§Usually under 0.5.
‖Estimated from scattered data.

TABLE 3—LOW-TEMPERATURE MATERIALS (ALL STEELS QUENCHED AND TEMPERED)

No.	Name—	S.A.E. No.	Composition, per cent: C	Ni	Mo	Cr	Charpy impact test at 50°F., ft. lb.
1a	Monel metal, annealed	....	Nickel-copper alloy				215
1b	Monel metal, forged	....	Nickel-copper alloy				187
1c	Monel metal, drawn	....	Nickel-copper alloy				135
2	Chrome moly	4130	0.3	...	0.2	0.65	116
1d	Monel metal, cast	....	Nickel-copper alloy				90
3	3.5 Nickel moly	4815	0.15	3.5	0.25		80
4	Chrome nickel moly	4340	0.4	1.75	0.35	0.65	75
5	Nickel moly	4640	0.4	1.83	0.25	...	72
6	Nickel	2110	0.1	1.5	...	...	68
7	Nickel	2320	0.2	3.5		...	22
8	Silicon manganese		0.15	(0.9 Si-1.1 Mn)			24
9	Carbon steel	1015	0.15	...	..	...	30

TABLE 4—EXCHANGER TUBE MATERIALS (WATER-COOLED)

No.		Approximate composition, per cent: Copper	Zinc	Tin	Nickel	Aluminum	Relative cost	Relative corrosion resistance
1	Plain steel (.15 per cent C)	..	..	..	..	..	1.0	poor
2	Admiralty metal	70	29	1	..	..	1.2	fair
3	Copper lined admiralty	70	29	1	(copper lined)		1.8	fair to good
4	Red brass	85	15	..	..	..	1.2	fair to good
5	Cupro nickel	80	..	..	20	..	1.8	good
6	Copper nickel tin	70	..	1	29	..	2.4	good
7	Copper nickel zinc	65	5	..	30	..	2.4	.....
8	Cupro nickel	70	..	..	30	..	2.2	excellent
9	Aluminum brass	76	22	..	..	2	1.6	good
10	Aluminum bronze	92	..	..	..	8	1.2	poor
11	Alcrosil steel	(See No. 4 and 12—Table 1)					..	excellent
12	18-8 Chrome nickel steel	(See No. 14—Table 1)					high	questionable

ble because the pressures were low except in operations that envolved heavy cast equipment, but more recently a number of solvent dewaxing processes have been developed which utilize many types of processing equipment. The solid solution types of alloys or steels such as monel metal and such as the nickel steels are in general the best type of material. Materials that are suitable for low temperature service are indicated in Table 3.

The steels shown in Table 3 retain some shock resistance to even lower temperatures than minus 50° F. except the carbon steel (No. 9) which drops sharply to an impact strength of less than 10 foot pounds. As an example of how the impact properties of some ordinary materials behave with respect to temperature, the following tabulation indicates approximate temperatures below which the materials lose their toughness so rapidly that they cannot be trusted.

	Unsafely low temp., °F.
5 per cent chrome steel	75
Carbon steel—S.A.E. 1060	60
Carbon steel—S.A.E. 1020	— 20
Vanadium steel—0.5	— 35
Silico manganese steel	— 50
Copper manganese steel	—100
Nickel and/or moly steels	—100-150
Monel metal and 18-8 chrome nickel steel	extremely low temperatures

Condenser and Exchanger Tubes

In the case of liquid-to-liquid exchangers the use of plain low carbon steel is most common although 5 per cent chromium tubes have been used with success for severe sulfide corrosion. The newly developed aluminum, chromium, silicon, molybdenum steels called Alcrosil steels are said to resist sulfide corrosion almost as well as 18-8 chrome nickel steel and to be free from the work-hardening which heretofore has often caused severe corrosion near the ends of rolled tubes.

For water cooled tubular condensers and coolers, admiralty metal continues to be the most widely used material except possibly plain steel, but the development of other copper-base alloys is progressing rapidly. Among tube materials that are recommended for coolers are those shown in Table 4.

A large number of alloy steels which contain only a small amount of special alloy element are used in the construction of pressure vessels, chambers, valves and fittings. Although internal corrosion can be serious in these equipments, the difficulty in forging, casting, or rolling high-percentage alloy steels is so great that thus far such steels have not been widely used. Because of the cost of corrosion resistant steels and the difficulty in fabrication, such vessels and equipment are usually constructed of high-strength steels which permit a lighter construction, or inversely, a longer life before the material becomes took weak by thinning.

So many types of low-alloy steels are available and they differ so little in composition that a tabulation of them will be of little value. In general most of the S.A.E. specification steels or similar steels containing nickel, molybdenum, chromium or vanadium are being used but in general the percentage of special element must be kept low in order to retain a highly ductile steel which can be fabricated with ease. In general, the beneficial percentage of nickel is seldom over 3 per cent, molybdenum is kept below 0.3 per cent, chromium below 1.25 per cent, manganese below 1.5 per cent and vanadium below 0.2 per cent. The carbon content is seldom over 0.3 per cent and in some alloy steels must be kept below 0.08 per cent. However, the quantity of special element that can be utilized depends greatly upon the difficulty encountered in the fabrication of the particular item of equipment. There are, however, several high percentage alloy steels such as those containing about 16 per cent of chromium with or without nickel which can be successfully fabricated.

Propane Treatment

(Continued from Page 63)

the exchangers the wax distillate is diluted to 80 per cent propane by the addition of cold propane. The propane is chilled simultaneously in a separate chilling system utilizing the cold filtrate for exchange on the scraped surface chillers of the original blend and then against the propane being chilled for cold blending.

When operating on Pennsylvania steam refined stock, we blend propane with stock and chill it by indirect means. Additional cold propane is then added to the optimum filtering dilution. The steam refined stock obtained by this method from Bradford crude shows about 3,000 optical density whereas the bright stock obtained is better than 1,000 optical density. The filter residue from this operation can be distilled taking overhead two 10 per cent fractions, i.e., 20 per cent overhead of light colored wax showing a melting point between 130-138° F. The residue of dark petrolatum carries the coloring material normally lost in the filtration process.

Table 5 gives the O.D. (optical density) of each cut representing a yield of 100 gallons of bright stock or cylinder stock finished to this color.

TABLE 5—OPTICAL DENSITY OF VARIOUS STOCKS

Cut No.	Dewaxed deresined (O.D.) *1100	(O.D.) *925	(O.D.) *1260	Charge stock steam cyl. stock (O.D.) *3020
1	157	121	119	269
2	284	298	241	540
3	351	440	376	830
4	578	535	457	995
5	615	657	647	1050

*Color before filtering in optical density.

Summary

The Sun-Alco process described has the following features:

1. Very accurate control of the blend of propane and oil, through a wide range of dilution.
2. Indirect chilling through recovered refrigeration carrying the initial blend to within 20-30° F. of filtering temperature.
3. Accurate control of filtering dilution.
4. A relatively small quantity of material is in the state of process at any one time which is a real advantage in large plants or parallel systems.
5. The only high-pressures in the plant are in tubular equipment thus making it possible to carry low pressure on all tanks and large vessels.

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TABLE 4—CHARACTERISTICS OF FRACTIONATED WAX DISTILLATE

	A.P.I. gravity	S.U.S. Vis. at 100-130°F.		Melting point (°F.)	M.E.K. per cent par.	Melting point of par. (°F.)
1-10 per cent	42	35	...	...	0.8	.....
2-20 per cent	41	40	...	...	3.2	84-86
3-30 per cent	38	47	...	...	10.1	92-94
4-40 per cent	36.5	55	...	...	14.1	96-98
5-50 per cent	35.4	60	...	..	16.2	106-108
6-60 per cent	34.3	81	...	74	16.6	114-116
7-70 per cent	33.1	99	..	84	16.8	122-124
8-80 per cent	32.3	...	79	90	16.6	124-26
9-90 per cent	30	...	105	96	15.7	130-32
Res.	29	..	199	96	14.5	130-32
Charge	35.1	70	...	...	11.9	.....
Combined first 50 per cent	38.4	44	...	...	8.7	98-100
Combined second 50 per cent	32.1	...	91	90	15.8	120-122

Economic Aspects of the Pawhuska Road Tests

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The choice of petroleum fractions which can be successfully included in motor fuels is governed by numerous factors. One of the most important of these is the operating characteristics of the motor vehicle fuel system. Information concerning the behavior of automobile fuel systems in service is rather meager, and in order to study this factor, there was sponsored jointly by the Western Petroleum Refiners Association, and the Natural Gasoline Association of America, during the summer of 1937, an investigation of the performance of fuel systems of representative 1937 model automobiles. Tests were made, over a period of three months, on nine 1937 model cars which were driven approximately 10,000 miles over a selected course, in the vicinity of Pawhuska, Okla.

W.P.R.A.—Before annual meeting of Western Petroleum Refiners Association, April 25-27, 1938, Hot Springs, Ark.

The tests were made by a full-time group of investigators, headed by R. R. Couch, under the direction of a steering committee composed of representatives from the two above named organizations. As defined by this committee, the project was carried out with a threefold purpose in view. Namely: (1) To make a critical study of existing road test procedures in order to determine their limitations; (2) to improve upon existing methods and develop better road-test procedures for the measurement of permissable vapor pressures, volumetric losses, and quality deteriorations of fuel; and (3) to obtain as complete information as possible on the fuel system characteristics of representative 1937 model automobiles.

The test procedures employed in this work for the measurement of permissable vapor pressures, vapor loss, and octane number loss, have been described in detail by Legatski and Couch[1] in a paper on this work presented before the eighteenth annual meeting of the A. P. I. . . .

The test results obtained in this investigation were also given in part by the previously mentioned writers. However, they will be repeated here, in part, to an extent sufficient for purposes of discussing: (1) The economic meaning of these results to the refining industry, and (2) the economic meaning of these results to the motoring public.

Permissible vapor pressures: In considering the data on maximum permissible vapor pressures, it should be kept in mind that these values are for extreme conditions, and that under normal driving conditions a somewhat higher vapor pressure fuel can be handled. In addition, these results are based on the fuel in the tank after vapor lock has occurred, and, therefore, are not necessarily indicative of vapor pressures permitted for fuels at the service station, or the refinery. These results, however, do compare fuel systems in various makes of cars, and are indicative of the differences which exist in such systems.

The test results, using the standard reference fuels, are shown in Table 1.

In order to discuss these results in terms of their significance to the refiner, consideration will be limited to a comparison of the car showing the highest permissible vapor pressure for a given temperature, which is car A, with the car showing the lowest permissible vapor pressure, which is car E.

A major premise of this discussion is the statement that the refiner must, and is building fuels for the poorest car from this standpoint. Therefore, if the poorest car were improved to equal the best the refiner could take advantage of the ability of such cars to handle higher vapor pressure fuels, and could include a corresponding increased amount of butane in his product.

Table 2 indicates the difference in butane content of the maximum vapor pressure fuels which can be handled by cars A and E, at various atmospheric temperatures.

In order to convert the differences in possible butane content into motor fuel volumes, it is necessary to estimate the ratio of fuel requirements at various atmospheric temperatures. Such a breakup of motor fuel requirements has been calculated, based on daily average maximum temperatures over a year's period by states, as shown in the Atlas of American Agriculture[2], and the gasoline volumes sold in various states by months, as shown in the A.P.I. statistical bulletins.

Using this basis of calculation, Table 3 shows the volumes of butane which could be included in motor fuels, if instead of building them for a car as poor as Car E with respect to permissible vapor pressures, they could be built for a car as good as Car A. This table is calculated on a basis of 525,000,000 bbls. total annual motor fuel requirement.

Two test cars used in the Pawhuska road test. The car at left is equipped with a tank to eliminate variances in the hydrostatic pressure on the fuel line. The test fuel gravitates from reservoirs placed in the rear end of the car to the tank. The other car is equipped with a rack containing small tanks of test fuels varying in vapor pressures.

This amounts to an average of 1.226 per cent additional butane in motor fuel.

The value of this increased utilization of butane to the refiner may be calculated in various manners. In a study of butane availability made by Alden[3] it is stated that there are approximately 62,500,000 bbls. of butane per year available for, but unused, in motor fuel. (This does not include the butane content of unprocessed natural gas.) Therefore the increased amount of butane which could be used as motor fuel is probably now only valued at the price of fuel gas. If we take this to be $0.10 per 1,000 cubic feet, and the refinery price of gasoline as $0.055 per gallon, then the increased value of this butane as motor fuel nets to the refiner $16,400,000 annually.

If calculated on a crude oil basis, assuming a 50 per cent gasoline yield from crude, the increased use of 6,400,000 bbls. of butane as motor fuel reduces crude requirements 12,800,000 bbls. which at $1.15 per barrel shows approximately the same net saving to the refining industry.

A second factor which merits consideration is

TABLE 1—MAXIMUM PERMISSIBLE REID VAPOR PRESSURES

Car designation	Atmospheric temp. °F. 80	90	100	Slope of V.P. temp. curve
A	12.23	10.62	9.04	0.158
B	11.38	10.15	8.96	0.119
B'	11.42	9.10	6.82	0.228
C	12.00	10.12	8.92	0.120
D	....	9.30	7.70	0.160
E	10.87	8.82	6.80	0.202
F	....	9.27	7.93	0.134
G	11.47	9.90	8.35	0.155
H	....	10.01	8.20	0.181

TABLE 2—BUTANE CONTENT RELATED TO VAPOR PRESSURE OF FUEL

Atmospheric temp. °F	Maximum vapor pressure Car A	Car E	Butane cont. of fuel % Car A	Car E	Diff. in butane cont. per cent
Below 60	....	....	no difference		
60	15.39*	14.91*	11.20	10.60	0.60
70	13.81*	12.89*	9.30	8.20	1.10
80	12.23	10.87	7.40	3.80	1.60
90	10.62	8.82	5.48	3.33	2.15
100	9.04	6.80	3.60	0.95	2.65
110	8.46*	4.78*	2.90	....	2.90

*Extrapolated value.

TABLE 3—ESTIMATED CONVERSION OF BUTANE TO MOTOR FUEL

Average daily maximum temp. °F.	Per cent annual fuel requirement	Possible increased butane utilization %	Bbls.
Below 60	20.19	none	none
60	14.68	0.60	462,420
70	15.53	1.10	896,855
80	23.31	1.60	1,958,040
90	20.66	2.16	2,331,998
100	5.25	2.65	730,406
110	0.38	2.90	57,855
Total			6,437,574

the effect of this additional butane on lead requirements in the finished motor fuel. The average blending value of butanes is from 90 to 92 octane number. Considering 70 per cent of the motor fuel ethylized with an average lead content of 0.65 cc. per gallon, it may be calculated that use of this additional butane would result in a saving for ethylizing expense for the same octane number product, of $1,862,000 annually.

Therefore, from solely the standpoint of permissible vapor pressures, the petroleum industry would realize potentially in the neighborhood of $18,000,000 annually if the fuel system of the poorest car were improved to the point of equalling the bests.

Fuel losses: It has been common knowledge for some time that a portion of the fuel is lost from the automobile fuel tank through the vaporization of light ends from the tank itself. In recent years, however, a second source of fuel loss has also become increasingly important, although it has received little mention. This is the fuel loss from the carburetor. In an attempt to minimize vapor lock, some car builders have worked toward lower fuel line temperatures by means of location, insulation, or other methods. Other manufacturers, however, have stressed increased vapor handling capacity of the fuel system and the venting of carburetors, so that the fuel system can handle considerable amounts of vapor which is vented to the atmosphere when it reaches the carburetor. This loss of fuel from the rear tank and the carburetor was also investigated as a part of the Pawhuska tests, in order to obtain information regarding the volumes of such losses and the effect of these losses on the degradation of fuel quality.

Exhaustive measurements were only made on two cars. On these cars losses were measured on the car tank and carburetor bowl liquids, over a range of atmospheric temperatures, using standard reference fuels over a range of vapor pressures. It was found that a fairly close relationship existed between the vapor pressure of the fuel in the car tank, the carburetor bowl temperature, and the observed volumetric loss of fuel. This enabled probable vapor losses to be calculated for all the cars on which temperature measurements had been made. The results of such calculations are shown in Table 4. . . .

The fuel losses observed relate directly to loss of octane number. Investigation of this relationship indicated that a loss of from 0.25 to 0.3 octane numbers occurred for each 1 per cent loss of fuel. A large proportion of present day cars under usual operating conditions are on the threshold of undesirable detonation with 72 octane (L-3 method) gasoline, particularly in hot weather. Therefore, it may readily be seen that a volumetric loss of from 4 to 7 per cent, which would result in an octane number loss of from 1.1 to 2.0 octane numbers, could easily mean the difference between satisfactory and unsatisfactory performance of the fuel.

In a later portion of this paper, the annual average overall fuel loss from this source is estimated conservatively at 1.96 per cent. This would mean an average equivalent loss of 0.54 octane numbers. If we relate this octane number loss to an equivalent amount of ethyl fluid on 70 per cent of the annual motor fuel requirement, it appears that the refiner spends over $2,000,000 annually for antiknock value, which is lost after the fuel is put into the rear tank of the automobile and before it gets into the engine.

Permissible vapor pressures: At a first glance, it would appear that improvement in higher permissible vapor pressures for motor fuels would work chiefly in economic benefit for the refiner. However, a review of past history clearly indicates that the petroleum industry has always passed on to the consumer in large proportion the benefits of more economical production. . . .

Therefore the benefits which would result from better fuel systems from the angle of permissible vapor pressures are not only significant to the refiner, but are also of considerable interest to the motor fuel consumer.

Fuel losses: The fuel losses from the rear tank and from the carburetor come directly out of the consumer's pocket. To him such losses mean less miles per gallon, or conversely a proportionately greater fuel cost per mile.

Any attempt to make an accurate estimate of what the monetary value of these losses mean to the consumer is almost hopeless due to the many unknown factors involved. However, it is believed that, with a very few assumptions, a minimum estimate can be made which represents the minimum value these losses attain.

Over an atmospheric temperature range of from 80° F. to 110° F. this loss appears to be some figure over 4 per cent. On an annual basis this minimum figure is reduced since 12 pounds is about the maximum vapor pressure of fuels, even when used at very low temperatures. In order to estimate what this minimum figure might be on an annual basis, it is necessary to estimate a relationship between the fuel volumes and the temperature at which they are used. Fuel vapor pressure specifications are usually based on average maximum temperatures, but the fuel is used at some lower average temperature, and it is believed that the mean of the average daily maximum and the daily average is a fair figure for this purpose.

Such an estimated relationship of fuel consumption, and temperatures, is shown in Table 5.

The vapor pressures of motor fuels sold for use at various average maximum atmospheric temperatures vary from 8 to 12 pounds. Motor fuel surveys indicate the relationship shown in Table 6.

In order to use these figures, the data on four cars, taken from Table 4, and from detailed studies made on two of them, have been extrapolated, and related to the vapor pressure of fuels used, as shown in Table 7.

Combining the temperature and fuel consumption figures from Table 5, the vapor pressures from Table 6, and the average losses from Table 7, an estimate of the annual fuel loss is made in Table 8.

A conservative estimate of minimum annual fuel losses from rear tanks and carburetors of cars is therefore placed at 1.96 per cent. On the basis of an annual motor fuel consumption of 525,000,000 bbls. at an average filling station price of 15 cents per gallon, the motoring public pays at least $65,000,000 per year for fuel which is lost from the automobile. The actual figure probably runs considerably in excess of this amount.

Ignoring the technical features relating to road test technique developed by this work, and confining the conclusions reached only to the economic aspects, it may be stated:

1. The fuel system characteristics of the nine 1937 model cars tested vary considerably.

2. From the standpoint of permissable vapor pressures, if the poorest car were improved to equal the best, the refining industry could utilize additional butane in motor fuel, amounting to 1.226 per cent of the annual motor fuel requirements. It is estimated this would net the industry at least $16,000,000 annually, and, in addition, decrease lead expense by $1,800,000.

3. Fuel losses from rear tanks and carburetor vents will run from 4 to 7 per cent in hot weather, and higher, depending upon the type of driving. A conservative annual estimate of 1.96 per cent minimum loss has been made by the writer.

In hot weather this accounts for octane number losses of 1.1 to 2.0 octane numbers, and will average at least 0.54 octane numbers on an annual basis. In terms of lead, this antiknock loss is valued at approximately $2,000,000.

An annual fuel loss of 1.96 per cent from the car costs the consumer at least $65,000,000.

TABLE 4—PROBABLE VAPOR LOSSES FOR STEADY DRIVING AT 55 MILES PER HOUR—VOLUME PER CENT

Car	Atmospheric temp. °F.	8.0-lb. vapor pressure fuel: Carburetor bowl	Rear tank	Total	9.0-lb. vapor pressure fuel: Carburetor bowl	Rear tank	Total
A	90	1.02	1.40	2.42	1.52	1.68	3.18
	100	1.67	1.89	3.56	2.17	2.25	4.42
B	90	0.93	...	...	1.43	...	...
	100	1.55	...	...	2.05	...	...
C	90	0.65	...	...	1.15	...	...
	100	1.20	...	...	1.70	...	...
D	90	1.57	...	...	2.07	...	...
	100	2.20	...	...	2.68	...	...
E	90	1.00	1.30	2.30	1.55	2.30	3.85
	100	1.40	3.30	4.70	1.90	4.20	6.10
F	90	1.72	1.00	2.72	2.22	2.00	4.22
	100	2.33	2.70	5.03	2.80	3.70	6.50
G	90	1.40	1.50	2.90	1.90	1.85	3.75
	100	1.95	2.09	4.04	2.45	2.55	5.00

TABLE 5—RELATIONSHIP OF FUEL CONSUMPTION AND ATMOSPHERIC TEMPERATURES

Atmospheric temperature °F.	Estimated per cent fuel consumption: Based on average temperatures	Based on average maximum temperatures	Mean
Below 70	55.93	34.87	45.40
70	22.70	15.53	19.12
80	17.44	23.31	20.37
90	3.90	20.66	12.28
100	0.03	5.25	2.64
110	....	0.38	0.19

TABLE 6—FUEL VAPOR PRESSURE VS. AVERAGE MAXIMUM ATMOSPHERIC TEMPERATURE

Average maximum temperature °F.	Vapor pressure at 100° F. (pounds)
110	8.0
100	8.0
90	9.0
80	10.0
70	12.0
Below 70	12.0

TABLE 7—EXTRAPOLATED FUEL LOSSES AT VARIOUS TEMPERATURES AND FUEL VAPOR PRESSURES—PER CENT

Car	Fuel vapor pressure	Average maximum atmospheric temperature—°F. 70	80	90	100	110
A	8.0	..	..	..	3.6	4.7
	9.0	..	..	3.2	..	..
	10.0	..	2.8	..	..	..
	12.0	2.5	..	..	..	..
E	8.0	..	..	..	4.7	7.1
	9.0	..	..	3.9	..	..
	10.0	..	3.3	..	..	..
	12.0	4.6	..	..	..	..
F	8.0	..	..	..	5.0	7.4
	9.0	..	..	4.2	..	..
	10.0	..	3.4	..	..	..
	12.0	4.8	..	..	..	..
G	8.0	..	..	..	4.0	5.2
	9.0	..	..	3.8	..	..
	10.0	..	3.5	..	..	..
	12.0	3.2	..	..	..	..
Average		3.78	3.25	3.78	4.33	6.1

TABLE 8—ESTIMATED AVERAGE ANNUAL FUEL LOSS

Mean atmospheric temperature °F.	Average overall loss	Per cent annual fuel requirement	Annual fuel loss per cent
Below 70	...	45.40	...
70	3.78	19.12	0.72
80	3.25	20.37	0.66
90	3.78	12.28	0.46
100	4.33	2.64	0.11
110	6.10	0.19	0.01
Total			1.96

References

1. Legatski, T. F., Couch, R. R., Fuel Systems of 1937 Automobiles, proceedings 18th annual meeting American Petroleum Institute, Chicago, Ill., Nov. 8 to 12, 1937.
2. Kincer, Joseph B., Atlas of American Agriculture, Part II Climate, "Temperature, Sunshine, and Wind."
3. Alden, R. C., Butane, a Wasted Asset of the Petroleum Industry. Refiner and Natl. Gasoline Manftr. 13, (6), 208-14, (1934) June.

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

High Gravity Oil Produced in Medicine Bow Field, Wyoming

Could you furnish an analysis of the "gasoline oil" produced in the Medicine Bow field of Wyoming?—R. F.

There is an oil of exceptionally high gravity produced by the Ohio Oil Co. and the California Company, which, according to the United States Bureau of Mines, has the composition shown in the table:

MEDICINE BOW OIL

Gravity, A.P.I.	63.4
Pourpoint, deg. F.	Below zero
Sulfur total, per cent	Under 0.1
Color	Orange yellow
Distillation:	Per cent
Gasoline, 66.7 grav.	71.2
Kerosene, 42.3 grav.	12.5
Gas oil, 35.4 grav.	1.8
Lube dist.	3.9
Residue, 19.4 grav.	1.0
Loss	9.6

The analysis indicates an oil of exceptional purity, with a very large yield of high-grade gasoline by straightrun operation. It does not appear, because of the presence of the heavy oils, it would be advisable to use the oil for motor fuel without refining.

Reference: U. S. Bureau of Mines R.I. 3358, "Analyses of Crude Oils from Some of the More Recently Discovered Rocky Mountain Fields," by Walter Murphy and H. A. Thorne.

Knocking in Relation to Altitude

What is the reason for an automobile engine knocking less in the mountains than it does in the lower sections of the country?—E. L. G.

The atmosphere at sea level contains approximately four times more nitrogen than oxygen; the nitrogen, being an inert gas, serves as a diluent to slow down the action of the oxygen while it is entering into combustion with the particles of a fuel. As the elevation becomes greater there is always a slowing down of the rate of combustion because of the lower air densities. This behavior corresponds with the role of the knock inhibitor in reducing combustion knock. When the rate of speed of the reaction is reduced there must be less air passing through the carburetor, with a proportionate decrease in the quantity of gasoline vapor carried into the cylinders of the engine and consequently a reduction in the temperature that may be produced as a result of the combustion. The mixture of air and hydrocarbon vapors upon entering the cylinders is immediately expanded because of the high temperature of the cylinder walls but is very rapidly compressed and it is this compressed mixture which constitutes the energy from the explosive charge that is the source of power to operate the engine.

The most important element influencing the tendency of a fuel to knock in the engine is the final pressure at the end of the compression stroke. This may be controlled by throttle adjustment and will vary with the altitude. When the throttle is closed the flow of the air-fuel mixture is reduced and with the resulting lowering of pressures within the cylinders there is less knocking. Opening the throttle causes a larger charge to enter, raises the pressure and therefore increases the tendency to knock. The same effective pressure may be attained at some altitude as at sea level, by opening the throttle, but this would be operative for a limited range when considering maximum performance.

Knocking is said to be caused by too rapid combustion of fuel particles, producing increase in volume, consequently pressure, and some unburned particles must be under more pressure than those that have preceded. This action is progressive until finally there remains a portion of the original volume much higher temperature and pressure than at initial ignition. It is thought that this last high temperature is sufficient to very much increase the rate of combustion, resulting in rapid vibrations in the cylinder. These movements within the gases are so powerful that they set up vibrations within the metal itself, and it is these that become audible to the motorist, commonly called engine knock or fuel detonation.

The results of the effect of altitude on antiknock requirements, as shown by 12 cars in road tests, were reported by MacCoull, Hollister and Crone, with these conclusions:

"For straightrun gasoline the average octane requirement was 69 at sea level, 52 at 5,100 feet, 49 at 6,000 feet, and 18 at 12,100 feet. The cracked gasolines needed 67.5 at sea level and 50 at 6,000 feet. At 12,100 feet four of the cars would not knock even on unblended n-heptane. Car acceleration improved in three of the cars when they were fitted with leaner carburetor jets for tests at 12,100 feet.

"Over the western plains of the United States where the altitude is more than 4,000 feet, fuels of 10 points lower octane rating may be used without knocking than at sea level; and at 2,000 feet a reduction of five octane numbers is permissible."

Reference: MacCoull, Hollister and Crone. "Effect of Altitude on Antiknock Requirements of Cars." Eighteenth annual A.P.I. meeting, Chicago, November 12, 1937.

Columbium Adapts Steel For Oil Refinery Service

What is columbium and how is it used in oil refineries?—T. G.

Columbium is one of the rare metallic elements of the vanadium group. Some confusion existed for many years as to the correct name. The associated element tantalum was discovered in 1801 by Hatchett, who called it columbium. The name niobium, from Niobe, the daughter of Tantalus, was given to the second allied element by Rose in 1846. In recent years tantalum has been firmly fixed and columbium has replaced niobium in the chemical literature.

A recent article by W. D. Wilkinson, Jr., in The Oil and Gas Journal described some special properties of columbium which are valued for preparing special steels required in the construction of refinery equipment. These include: Improvement in the fabrication by welding; the addition of columbium to the steel improves toughness at all temperatures; also increases the resistance to oxidation at high temperatures.

Reference: W. D. Wilkinson, Jr. "Columbium Bearing Steel Has Many Favorable Properties," The Oil and Gas Journal, October 14, 1937, page 74.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Methylbutyl Ketone

Use—Solvent for dewaxing.

Form—Colorless liquid, characteristic odor

Formula—$CH_3.CO.C_4H_9$.

Specific gravity—0.830.

Melting point— —70° F.

Boiling point—261° F.

Soluble—Alcohol and ether.

LIMITATIONS

Acids	None
Alkali	None
Boiling point, °F.	261
Specific gravity	0.830

The Formula For B.T.U. Value From Gravity

I would appreciate the information showing the method or formula used for calculating the approximate thermal value of fuel oil from A.P.I. gravity.—M. G.

About 30 years ago Sherman and Kropf determined the heating value, by bomb calorimeter test, of a large number of oils, from which they developed the very serviceable formula:

$$\text{B.t.u. per pound} = 18{,}650 + 40\ (\text{gravity} - 10)$$

Their gravities were Baume for liquids lighter than water but the slight difference between Baume and A.P.I. gravities need not be considered when making use of the present A.P.I. standard numbers.

It is well known that the lighter liquids, such as aviation gasolines, have the higher B.t.u. values per pound and the per gallon equivalent is higher for fuel oils. Fuel oils are always sold by volume so the lower gravity of two oils is the cheapest at an equal price per gallon.

The S and K formula was arranged from the combustion of hydrogen in the oil to liquid water. If it is desired to consider it burned to water vapor, then the formula may be adjusted to include the subtraction of 1,200 B.t.u. per pound.

Reference: Sherman and Kropf, Journal of American Chemical Society; 30, 1626, 1908.

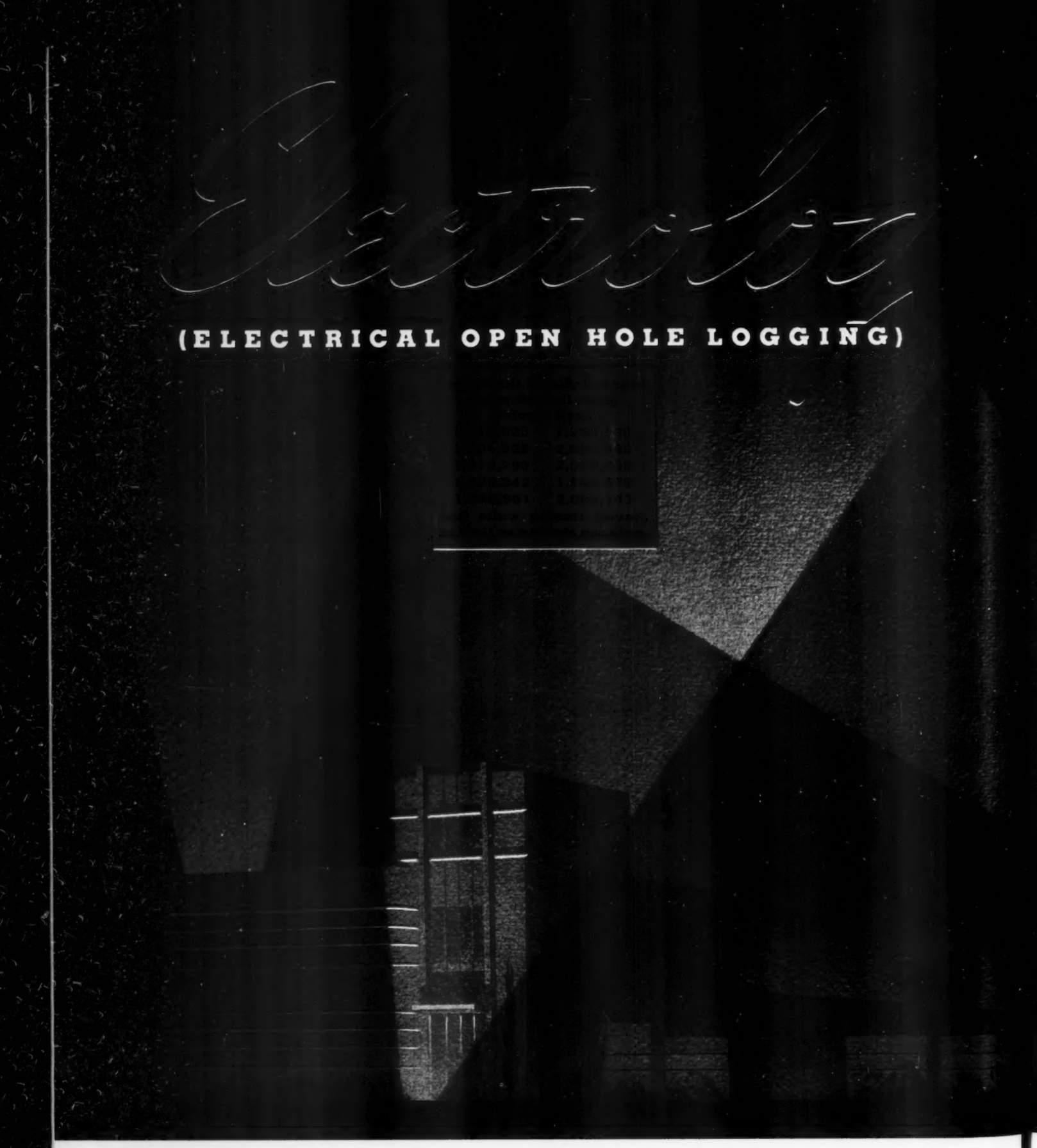
Properties of Solvent Naphtha

It will be much appreciated if you will furnish approximate specifications to cover solvent naphtha.—D. E. G.

Solvent naphtha is obtained in the heat treatment of coal, a liquid product of coal tar. A good grade should conform to these requirements:

Color	21 Saybolt
Distillation:	
Initial boiling point, below	275° F.
5 per cent at	266° F.
At least 90 per cent at	293° F.
Endpoint, max.	310° F.
Acidity	None
Specific gravity	0.850-0.870
A.P.I. gravity	35-31
Sulfur compounds as H_2S and SO_2	None

Solvent naphtha was described on this page in the issue of September 9, 1937.



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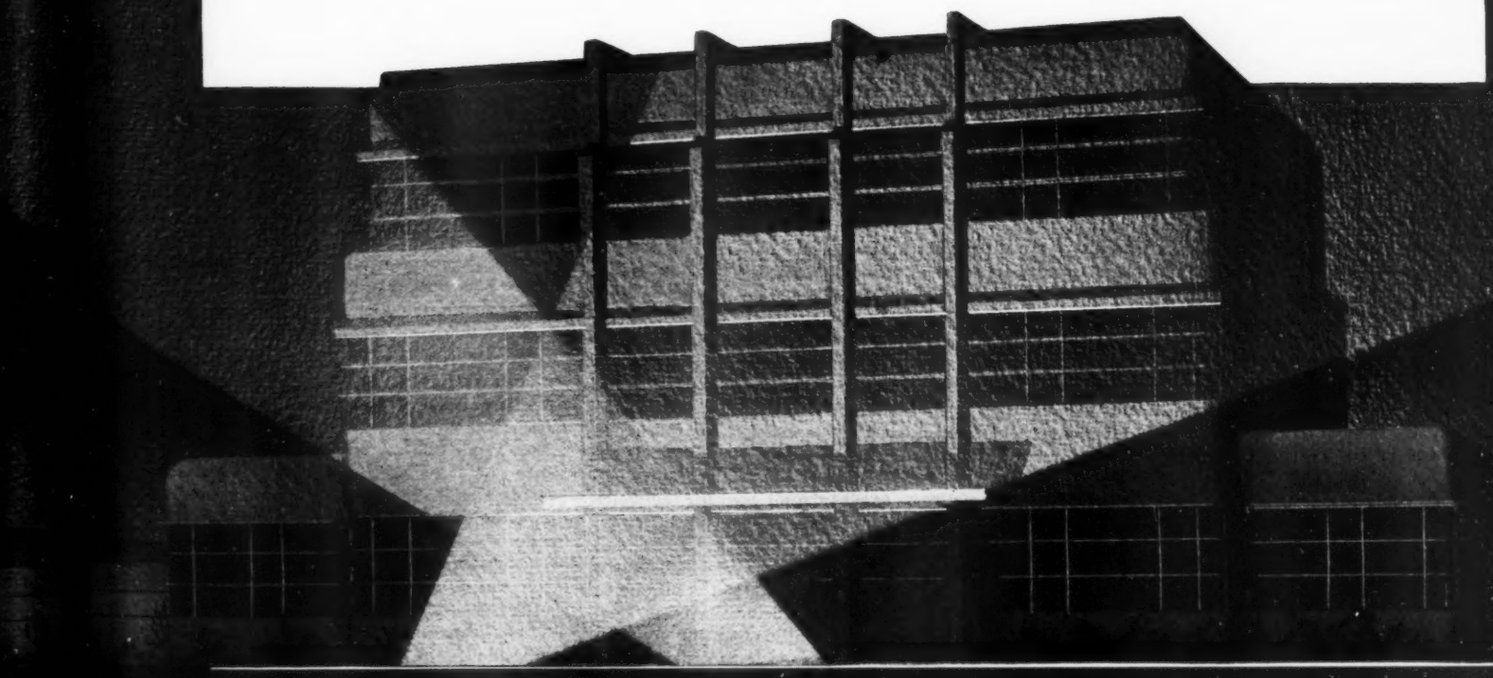

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PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Positive-Displacement Meters Used to Measure Volume of Oil

The idea of using some device to automatically measure the volume of the oil produced by a well has long been held by production men and engineers, and as these instruments are made available they will find many places where their installation will be very desirable. Gas meters have long been used wherever natural or artificial gas has been handled. They have proved their worth, and the industry and gas consumers have accepted them as part of the regular equipment. This custom has led the oil man to try to secure some similar device for use in measuring oil both at the well head and in the pipe line.

The problem of meter design is really divided into two parts. One problem is to design a meter suitable for use on gas-free oil, and the other is to take the entire production as it comes from the well head and pass it through a device and record the volume of oil produced. Well-head production might include gas, water, sand and oil. It also might register high pressures which would mean the gas was compressed and would expand as pressure was relieved, thus changing its volume with relation to the water and oil volume, which are for practical purposes considered incompressible. It is known that with the positive-displacement type meter there will be an error when metering gas-saturated oil in which the drop in pressure will occur upstream from the meter, permitting liberated gas to pass through the meter with the oil.

The U. S. Bureau of Mines recently issued a report of investigations conducted by R. E. Heithecker and W. B. Berwald of the Bartlesville, Okla., experimental station, known as No. 3396 and entitled "Calibration of Positive-Displacement Oil Meters." This report was presented in part before the Oil-Metering Conference, Norman, Okla., recently and received very favorable comment. Report of the discussion following the presentation of the report will be available during May and may be secured from Dean W. H. Carson, department of engineering, University of Oklahoma, Norman, Okla. For those who attended the meter course the registration fee covers a copy of the report of the meetings; for others there will be a nominal charge made for the report.

The Bureau of Mines engineers undertook to make tests involving two types of calibration. The first was a direct test to determine the accuracy of four different meters through which measured quantities of weathered oil were pumped at different rates of throughput.

The second type of test was made to determine the magnitude of error when metering a gas-saturated oil in which a pressure drop was induced upstream from the meter purposely to cause liberation of gas from solution in the oil in order to study the probable error under those conditions. For this second test the meters were hooked up to a separator in the Oklahoma City field and gas-saturated oil from the Wilcox sand was used.

For the "dead-oil" test four positive-displacement type oil meters were calibrated to determine the accuracy of the meter counter. Weathered oil, approximately 45 degrees A.P.I. gravity at 60° F., was pumped out of one tank, through the meter, and was discharged into another tank.

Two tests were made with a 1-inch meter, with a rated capacity of 1/20 to 25 gallons per minute, each test consisting of pumping 18 bbls. of oil from one tank to the other. The results indicated a very close gauging with the meter, and it was concluded that for a large volume of oil the meter was accurate.

Three tests similar to those made with the 1-inch meter were made, the only difference being that a 2-inch positive-displacement meter having a rated capacity of 1 to 120 gallons per minute was used. On this test the meter counter indicated less oil than actually passed through the meter. This required the use of a correction factor, varying from 103.407 to 104.042 per cent.

Two other tests were made on weathered oil using 1½-inch positive-displacement meters with rated capacity from 8.4 to 69.72 gallons per minute and built to record oil volumes corrected to 60° F. The meters were of the same size and make and designated at "A" and "B" in the report. Meter "A" indicated that slightly more oil was passed than the volume pumped from the tank, whereas Meter "B" indicated a volume slightly less than the corrected volume as measured in the tank. These differences were very small and within the limits of experimental error.

The principal result of these tests made upon "dead" oil was to emphasize the need for accurate counter mechanism so actuated as to prevent accumulated error.

The "live-oil" calibration tests were made with a 1-inch positive-displacement, piston-type oil meter with rated capacity of from 1/20 to 25 gallons per minute. Gas-saturated oil at a pressure of 80 to 83 pounds per square inch, gauge, was taken directly from an oil-gas separator handling the production from the Wilcox sand found at 6,424 to 6,504 feet. The oil had a gravity of 38.8 degrees A.P.I. After passing the meter the oil was delivered into a closed-top steel tank of approximately 120 gallons capacity equipped with sight-gauge glass and calibrated in tenths of gallons.

In connection with the meter-calibration study with gas-saturated oil, a sample of the oil was taken from the oil-gas separator under the same operating conditions as was the oil used for the meter tests. The oil sample was broken down in the laboratory into its proportionate parts of gas and oil at lower pressures. The quantity of gas liberated from solution and the shrinkage of the oil due to the liberation of gas were determined for each pressure reduction between the operating pressure of the separator and atmospheric pressure.

Report No. 3396 contains data from unpublished work performed in Oklahoma City field by Ben E. Lindsly and Peter Grandone on shrinkage and gas-liberation from separator sample of oil. The oil-gas separator was operating under 82 pounds per square inch gauge pressure when the sample was taken and the pressure on sample was gradually reduced to zero and reading taking at each step.

The shrinkage of oil upon release of gas from solution was 1.153 per cent total, with a total correction factor of 18.38 per cent. The original volume of the sample at 94° F. was 4,022.4 cc. and at zero pressure was 3,976 cc. of oil and 17,650 cc. of gas had been liberated.

These tests indicate the 1-inch meter will measure the volume of dead oil accurately. The meter measured accurately volumes of gas-saturated oil from the Oklahoma City field when there was no appreciable pressure drop upstream from the meter. If there is pressure drop upstream from the meter, and a gas-saturated oil is passed through the meter of the positive-displacement type large errors in volume measurements will result. Liberated gas registers a volume displacement in the meter approximately the same as an equal liquid volume. This limits the effectiveness of this type meter for handling gas-saturated oil, but it is possible to arrange to liberate the gas from the oil before metering, and then accurate measurement can be secured.

Field Use for Oil Meters

For several years oil meters employing the same basic principles as used in the design of water meters have been used for gauging the production from individual wells, groups of wells, and in some instances for the metering of the entire production from a lease. Where surface conditions limit the use of storage tanks, oil meters have been used in a satisfactory manner to gauge the oil. In this way the need of gauge tanks has been eliminated. Oil meters have also been used by many pipe-line companies, both for checking oil from field-gathering systems and also for gauging the oil as it enters and leaves pump stations.

With modern pipe-line systems designed to transport oil direct from the field-gathering station to terminal with the use of a minimum number of tanks along the line, the oil meter has been used very successfully to gauge the oil during its passage from point to point in the system.

There have been instances when state regulatory bodies have ordered the use of oil meters for gauging production from the wells, also as check mediums for recording the oil produced in various areas and oil transported from fields.

The actual use of a meter at well head has been difficult because of the complex nature of the production coming from the well. When the well makes sand, this material will settle out in the meter and prevent its operation. This has been overcome under test conditions by frequent cleaning of the meter and removing accumulated sand, but for everyday purposes such frequent cleaning of meters is not practicable, and therefore the meter can only be used after the oil has passed through separators in which the gas, water and sand has been separated from the oil. Oil as nearly as possible free of gas can be handled in the meter.

The interest in meters for gauging oil was evidenced by the interest shown in the Oil-Metering Conference held at the University of Oklahoma, Norman, Okla., April 7 and 8. These discussions were well attended by about 150 engineers and executives from oil companies in 12 states and an additional 125 student engineers who are directly interested in the problems. Many types of meters were shown and competent engineers and designers were present to explain details. Technical sessions were held during the two days, and several very interesting and instructive papers were presented. A round-table discussion was held after the banquet, which resulted in the crystallization of thought and should lead to further development of practical oil meters for general use.

FIELD OPERATIONS

Summarizing the Week's Developments

KENTUCKY—The old western Kentucky district supplies the most interesting news of the week in the production division of the oil business. The Hoosier Oil Co. is reported to have topped McClosky "sand" at 1,872 feet in a test on the Blackwell farm near Hebbardsville, Henderson County, and at 2 feet in the pay the well flowed 50 bbls. an hour. The McClosky lime, Lower Mississippian, is the big pay in the Central Illinois Basin, and the objective of operators who have been leasing in Indiana and western Kentucky with deep drilling in mind.

KANSAS—Four pool openers in Kansas were completed, two in Stafford County and one each in Barton and Graham counties. The Aldrich pool, Ness County, was extended one-half mile eastward, and extension of the Zenith pool, Stafford County, one-half mile northward was assured. A 3,577-bbl. well was completed in the Habiger area of the Stumps pool, Rice County, and a 3,213-bbl. well was completed in the Bemis pool, Ellis County.

OKLAHOMA—Wildcats were completed as small producers to open pools in section 29-9-9, Hughes County, and section 16-3n-3e, Garvin County. The wildcat in section 14-4-5w, Grady County, deepest test ever drilled in Oklahoma, was abandoned at 11,415 feet. The sixth Ramsey pool producer in Payne County flowed 1,270 bbls. of oil in two hours to rate as the biggest well in the pool.

TEXAS—The opening of Frio production in the Alice area in Jim Wells County by a well starting at the rate of 800 bbls. a day, pinched in, and producing 44-gravity oil, was the Southwest Texas feature of the week. A new pay in the Saxet field and the further limiting of the productive area in the Benavides field were of interest. Twenty-nine wells were completed in the K.M.A. field in Wichita and Archer counties and drilling reached a new high. Two new intermediate sands were found in Archer wildcats drilling to the K.M.A. horizon. K.M.A. was extended 2½ miles southward on the west side of the field in Wichita County. The Stanolind deep test in the Kosse area in Limestone County was abandoned at 9,951½ feet. Sulphur Bluff allowable was raised to 6,351 bbls. The Denver-Wasson area in Gaines and Yoakum counties is now estimated to be potentially productive in 28,000 acres. In the Gulf Coast a number of near completions are receiving attention, but the Ryan & Thompson test which promised to open a new pay in the Orange field later proved disappointing, having swabbed salt water.

NEW MEXICO—Six oil wells were completed in the Vacuum area, Lea County. The week's completions included 13 oil wells, a 250,000,000-foot gas well and one failure in Lea County and one producer in the Jackson pool, Eddy County. The failure limited the Skelly sand pool on the east.

CALIFORNIA—A number of Wilmington operators have set a good example by restricting production of their wells to 800 bbls. per day per well. The present allowable is 1,000 bbls. per day per well.

MICHIGAN—This field came out of its mud-ridden slump and completed 16 oil wells and 10 dry holes in the past week.

Completions in All Fields

(Week Ending April 23, 1938)

	Oil	Gas	Dry	Total	1938 total comp. to date	1937 total comp. to date
N. Y., Pa. and W. Va.	34	5	2	41	1,419	1,238
Ohio	5	8	4	17	283	282
Indiana	0	0	0	0	25	38
Kentucky	7	1	5	13	227	37
Illinois	16	0	3	19	251	19
Michigan	16	1	10	27	233	257
Kansas	24	1	9	34	564	675
Oklahoma	31	4	6	41	532	849
Texas:						
North Central Texas	53	0	29	82	893	837
West Texas	34	2	6	42	710	771
Texas Panhandle	9	0	0	9	205	198
East Texas	51	0	0	51	761	649
East Central Texas	2	0	6	8	116	202
East Texas Border	3	0	0	3	51	138
Gulf Coast Texas	23	1	2	26	384	409
Southwest Texas	31	0	13	44	671	1,019
Total Texas	206	3	56	265	3,791	4,223
North Louisiana	5	0	0	5	181	183
Gulf Coast Louisiana	3	0	0	3	148	145
Total Louisiana	8	0	0	8	329	328
Arkansas	6	0	2	8	77	37
Montana	1	0	0	1	19	34
Wyoming	1	0	0	1	53	28
Colorado	1	0	0	1	2	6
New Mexico	14	0	1	15	186	233
Utah	0	0	0	0	0	0
California	17	0	6	23	424	442
Total United States	387	23	104	514	8,415	8,726
Total previous week	349	33	106	488		
Difference	38	10	2	26		

Outstanding Fields--Highlights

(Week Ending April 23, 1938)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
Hastings	4	0	3	1,741	512	19,896
McCampbell	1	3	2	240	116	5,296
Saxet	5	6	1	180	596	35,884
Benavides	4	10	3	291	179	10,212
East Texas	35	87	51	2,532	24,982	432,400
Talco	0	4	1	265	627	26,900
K.M.A.	41	175	29	25,090	290	15,247
Ector County	20	109	13	8,422	977	32,750
Winkler County	8	21	5	965	1,618	37,100
OKLAHOMA						
Dora	3	9	3	700	50	5,725
Oklahoma City	2	16	1	205	2,441	123,475
KANSAS						
Barton County	5	19	4	1,141	309	12,825
Ellis County	4	21	3	5,875	308	11,540
Rice County	5	16	2	2,674	1,142	36,165
Russell County	5	40	3	1,706	1,057	30,215
NEW MEXICO						
Lea County	11	95	13	2,990	1,702	98,260
LA-ARK-TEX						
Rodessa, Ark.	2	5	4	825	80	8,015
Rodessa, La.	0	3	0	0	454	41,620
Rodessa, Tex.	4	18	3	1,150	421	37,965
Lisbon, La.	6	12	2	1,600	200	10,715
Shuler, Ark.	3	20	1	1,440	43	19,685
MICHIGAN						
Buckeye	3	17	3	409	392	21,561
ILLINOIS						
Central Illinois	31	129	16	3,652	420	35,582
CALIFORNIA						
Wilmington	5	28	5	11,180	440	99,250

North and East Texas

By MITCHELL TUCKER

K. M. A. Field Hits New Peak in Drilling; South Extension

WICHITA FALLS, Tex., Apr. 25.—At the close of the week in the North Texas district the K.M.A. pool of Wichita and northern Archer counties reached a new all-time high in field activity. Thirty-nine locations were staked, bringing the total to 85. There are 175 drilling wells in the field, 7 with pits dug and 31 rigging up.

A special railroad commission hearing on the K.M.A. pool will be held at Wichita Falls May 2. The commission will consider well spacing, the proration formula and the casing program, as well as determine whether the Blackwell Oil & Gas Co.'s Panther discovery well in Archer County, approximately 10 miles southeast of the K.M.A. pool proper, should be set up as a separate proration unit.

The continued search for new Archer County deep sands centered most of the attention in the area last week, as two new sand horizons were established. During the course of drilling the Reno Oil Co. No. 10 Wilmont, section 4, S.P. Survey, about 2½ miles southwest of the Panther pool discovery well, cored saturation in a stray sand at 3,766-78 feet, recovering 4 feet of sandy lime and 2 feet of saturated oil sand. The next sand, believed to be still above the pay section of the discovery well, was found at 3,831-40 feet. Operators were preparing to set pipe and test the second sand.

C. W. Snoddy No. 1 Jones-Cullum, in the T. Freeman Survey, Abstract 134, has been completed to its contract depth of 4,500 feet and is making an electrical survey of the hole. Saturation in what was believed to be the K.M.A. lime was encountered from 4,060-79 feet.

Blackwell Oil & Gas and Helmerich & Payne No. 2 Wilson, 1,000 feet southeast of the discovery, in section 25, A.T.N.C.L. Survey, was drilling below 4,950 feet. It logged sand at 3,859-88 feet but was drilled deeper for completion of a 5,300-foot contract.

Fain & McGaha Oil Corp. and Humble Oil & Refining Co. No. 1 Mrs. Fuller, section 12, H.&T.C. Survey, in the northeast corner of Archer County, is drilling below 2,950 feet, after passing up a saturated section in the Canyon lime from 2,463-70 feet.

K.M.A. Field Proper

Extension of the K.M.A. pool, 2½ miles to the south on the west side of production, was seen last week as C. W. Boller & Griffin No. 1 S. Y. Collins responded to a 300-quart shot by flowing over the spudder mast. Saturation was found in a 20-foot sand at 3,860-80 feet. Location is in the S. Roberts Survey, Abstract 580, and is about 1½ miles north of the Geier Brothers & Jackson No. 1 Ancell dry hole on the southwest end of the field.

Phillips Petroleum Co. and Shell Petroleum Corp. made the first location on their jointly-owned 1,000-acre block on the west side of the pool. The test will be No. 1 Mary E. Reilley, in the Floyd Jordan Survey, Abstract 167, on the southwest corner of the pool and about 2 miles northeast of the Geier Brothers and Jackson dry hole.

Young County

New deep lime production in Young County was seen last week as Kadane-Griffith No. 1 Sanders, 1½ miles north of the Burns pool, was credited with flowing 70 bbls. of oil per hour following a 10,000-gallon acid treatment from 4,210-35 feet, total depth. The pay section checked approximately 150 feet lower than nearest production 1¼ miles to the southwest in the Burns pool.

EAST CENTRAL AND EAST TEXAS

DALLAS, Tex., Apr. 25.—Final abandonment was made last week of Stanolind Oil & Gas Co. No. 1 Tenny Norris, K. Thrasher Survey, 5 miles north of Kosse in Limestone County. The well was abandoned after unsuccessfully testing each possible producing horizon as it was plugged back from an original total depth of 9,951½ feet. This was one of the few tests in East Central Texas to penetrate the Permian lime of the Paleozoic era.

In Titus County, Ajo Oil Co. No. 1 Saunders, in the C. Paine Survey, about 2 miles west of Talco, was abandoned at a total depth of 5,903 feet, after finding the Lower Glen Rose formation barren. This is the second deep exploratory test in the area to fail, Magnolia Petroleum Co. having drilled the first such test last summer on the eastern edge of the Talco pool.

On the Kelsey dome in Upshur County, Tom Hunter and American Liberty Oil Co. No. 1 Fields, Lower Marine Trinity test in the J. H. Carter Survey, was drilling below 8,579 feet in sandy shale. Humble Oil & Refining Co. and Gulf Oil Corp. No. 1 E. Robertson in the M. Mann Survey, 1 mile southwest of Longview in Gregg County, the deepest drilling well in the East Texas area, was drilling below 9,721 feet in hard sand and shale.

Sulphur Bluff Allowable Raised

The Texas Railroad Commission last week increased the allowable of the Sulphur Bluff pool in Hopkins County from 2,701 bbls. to 6,351 bbls. daily to take care of foreign contracts.

Woodbine Sand Tests

New developments were seen in Woodbine sand wildcat tests throughout East Central Texas last week as either production possibilities or failure loomed for several of the closely watched tests. J. R. Dunn Drilling Co. and John G. Mayo No. 1 C. Bounds, in the Wade Walters Survey, 4½ miles north of Ponto in Cherokee County, gave indications of opening a new pool when a core from 4,014-15½ feet revealed 1 foot of saturated sand. With salt water threatening from below, operators plan to run 5-inch casing to the bottom of the hole and perforate through the sand horizon.

East Texas Field

Operations in the big East Texas field were of the routine order. Fifty-one wells were completed, altogether gauging 2,532 bbls. per hour. The new wells bring the total of producing wells in the field to 24,982.

EAST TEXAS FIELD COMPLETIONS

(One-hour gauges)

Gregg County—Longview Area

Arkansas Fuel Oil No. 12-B S. G. Smith, 3,541-59 feet, 68 bbls. Atlantic Refining Co. No. 13-A Satterwhite, 3,670-3,730 feet, 60 bbls. Bond & Dillard No. 16 J. C. Barrett, 3,636-52 feet, 50 bbls. Colonial Oil No. 2 J. W. Aikens, 3,530-3,614 feet, 90 bbls. F. H. E. Oil Co. No. 9 J. E. Christian, 3,587-3,622 feet, 40 bbls. Humble Oil & Refining Co. No. 33 Armstrong, 3,590-3,631 feet, 63 bbls.; No. 10-B D. Johnson, 3,625-85 feet, 56 bbls. L. G. & S. Oil Co. No. 6-C D. W. McQueen, 3,606-13 feet, 26 bbls. Magnolia Petroleum Co. No. 10 R. L. Saulter, 3,591-97 feet, 80 bbls.; No. 13 Ziegler, 3,467-78 feet, 80 bbls. Stanolind Oil & Gas No. 21 P. Hopkins, 3,508-99 feet, 59 bbls. Sun Oil Co. No. 17 M. Thomas, 3,464-98 feet, 63 bbls. Superior Oil No. 13 A. Jones, 3,590-3,653 feet, 120 bbls. Tide Water Oil No. 47 Lake DeVernia, 3,535-75 feet, 48 bbls.

Gregg County—Kilgore Area

Atlantic Refining Co. No. 20 P. Griffin, 3,558-3,691 feet, 80 bbls. P. F. Carroll No. 1 Hendricks, 3,542-63 feet, 5 bbls. Federal Oil Co. No. 4-B W. Smith, 3,542-57 feet, 40 bbls. Gulf Oil Corp. No. 30 W. Holt, 3,595-3,603 feet, 40 bbls. Jones-Doss Co. No. 12 E. Hagler, 3,561-62 feet, 30 bbls. M. W. McVey No. 5 Laird, 3,530-47 feet, 40 bbls. Milford Oil Co. No. 5 W. Smith, 3,539-55 feet, 90 bbls. M. R. Newman No. 2 F. P. Crews, 3,740-41 feet, 5 bbls. Shell Petroleum Corp. No. 5 W. Daniels, 3,540-3,625 feet, 60 bbls.; No. 22-A J. Douglas, 3,577-3,650 feet, 66 bbls.; No. 13-B H. T. Elder, 3,520-90 feet, 56 bbls. Sun Oil Co. No. 19 W. Pentecost, 3,588-3,658 feet, 45 bbls. H. H. Terte No. 5 H. C. McNeely, 3,623-26 feet, 30 bbls. W. C. Turnbow No. 3 R. Lacey, 3,535-55 feet, 40 bbls.

Rusk County—Kilgore Area

Shell Petroleum Corp. No. 17 J. H. Spivey, 3,684-3,767 feet, 70 bbls. Stanolind Oil & Gas Co. No. 13 J. S. Powers, 3,680-81 feet, 35 bbls. W. B. Tucker No. 8 D. Willis, 3,648-50 feet, 33 bbls.

Rusk County—Joiner Area

T. C. Adams No. 8 J. E. Arnold, 3,652-3,700 feet, 32 bbls. Cable Tool Drilling Co. No. 2 Rhodes & Deskin, 3,749-59 feet, 46 bbls. O. Henson No. 6 R. A. Motley, 3,786-88 feet, 42 bbls. Humble Oil & Refining Co. No. 16-B Ida Holt, 3,717-37 feet, 72 bbls.; No. 22-A J. H. Silvey, 3,682-83 feet, 78 bbls. McDonald-Campbell No. 7 Wheelis-Davis, 3,764-87 feet, 18 bbls. Marco Drilling Co. No. 5 J. H. Sparks, abandoned derrick. Octo Oil No. 3-D Bradford, 3,610-51 feet, 55 bbls. Sinclair Prairie No. 73 I. L. Kinney, 3,633-73 feet, 80 bbls. Trico Oil No. 3 A. J. Deason, 3,642-82 feet, 5 bbls. Ward Oil Co. No. 44 E. S. Thrash, 3,749-89 feet, 46 bbls.

Upshur County—Longview Area

P. H. Pewitt No. 6 T. J. Kirk, 3,724-25 feet, 46 bbls.; No. 5 M. F. Phillips, 3,750-51 feet, 4 bbls. B. F. Phillips No. 1 W. L. Mathews, 3,641-49 feet, 1 bbl. Sabinas Oil No. 12-C T. M. Collins, 3,705-07 feet, 60 bbls. Shell Petroleum Corp. No. 25 C. C. Landers, 3,708-77 feet, 50 bbls. Sun Oil Co. No. 1 Crosby-Williams, 3,660½-61 feet, 10 bbls. Texas Co. No. 10 A. G. Dearing, 3,651-3,712 feet, 10 bbls.

Smith County—Joiner Area

E. E. Graves No. 4 T. O. Wright, 3,699-3,700 feet, 62 bbls.; No. 5 T. O. Wright, 3,704-06 feet, 72 bbls. Magnolia Petroleum Co. No. 22 R. Loosier, 3,675-79 feet, 74 bbls.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour gauges)

Anderson County

In the Long Lake field, Stanolind Oil & Gas Co. No. 1 S. Y. Parker, 5,292-5,372 feet, 49 bbls.

Angelina County

Gar-Flo Oil Co. No. 1 Copes Heirs, dry and abandoned at 3,625 feet.

Delta County

O. W. Killam No. 1 Delta Farming, dry and abandoned at 2,920 feet.

Franklin County

Ajo Oil Co. No. 1 Saunders, dry and abandoned at 5,903 feet.

Limestone County

Stanolind Oil & Gas No. 1 Tenny Norris, dry and abandoned at total depth of 9,951½ feet.

Smith County

Pevito & Pruitt No. 1 T. J. Ingram, dry and abandoned at 5,218 feet.

Titus County

In the Talco pool, Humble Oil & Refining Co. No. 13 L. Blackburn, 4,209-4,322 feet. 265 bbls.

(Continued on Page 104)

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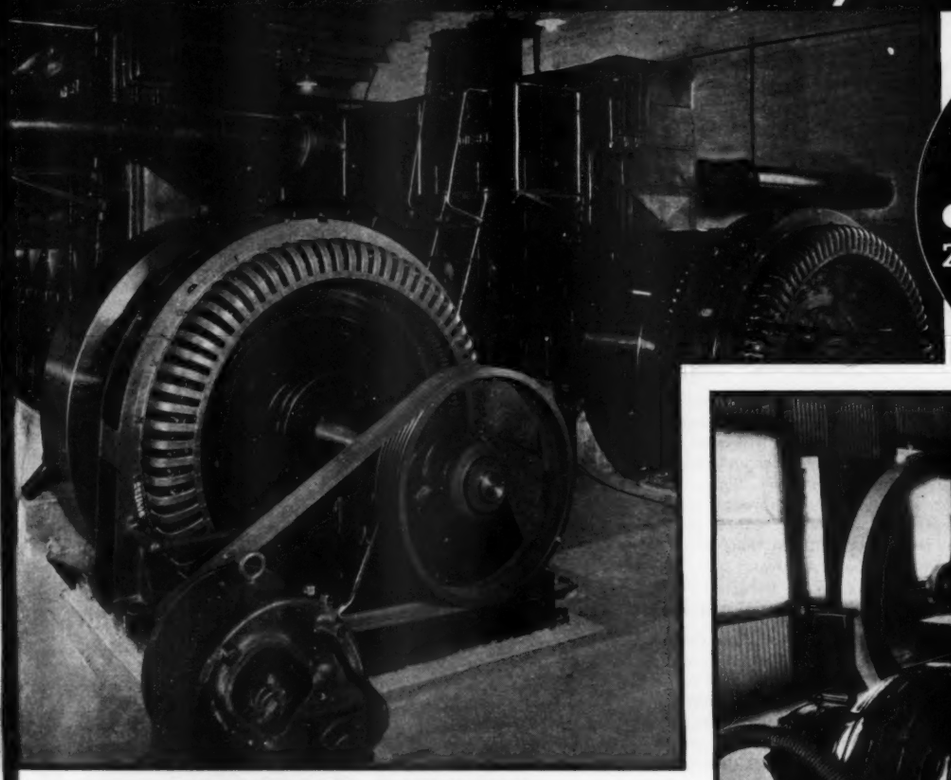

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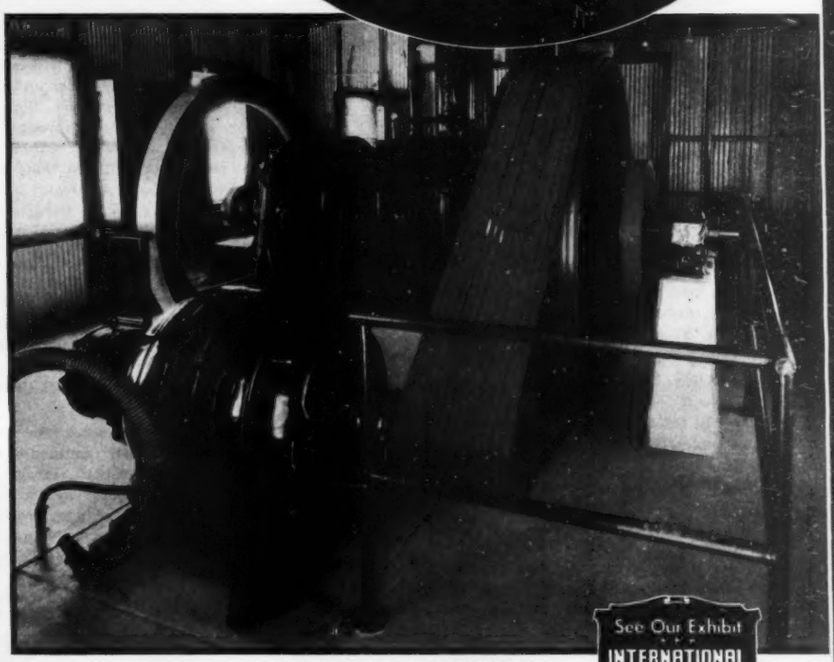

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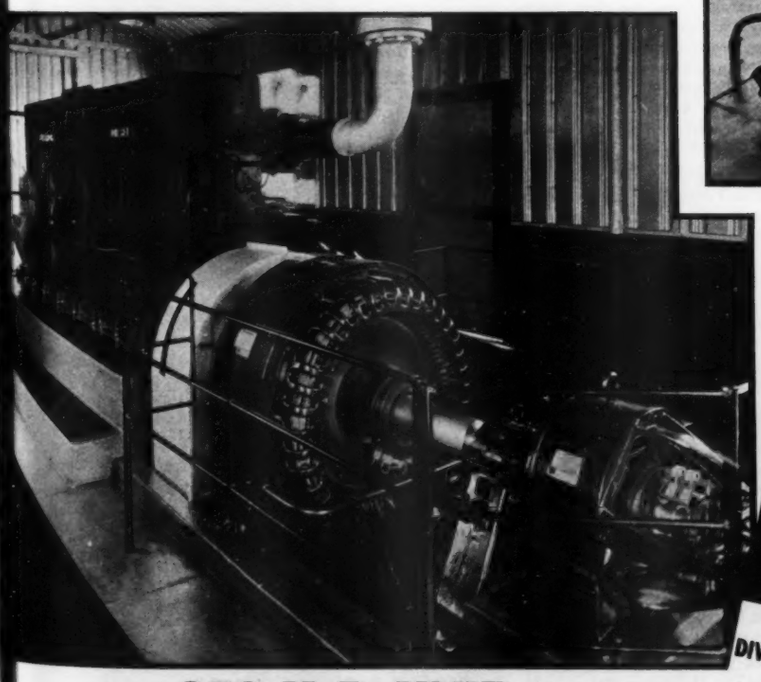

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Texas and Louisiana Gulf

By NEIL WILLIAMS

Promising Test at Orange Failed on Production Test

HOUSTON, Tex., Apr. 25.—Ryan & Thompson No. 1 W. S. McGill, which in last week's review showed promise of opening a new sand for the southwest flank of the Orange field, Orange County, proved disappointing on the initial production test, and is being recompleted. It swabbed salt water. With the hole bottomed in sand at 6,123 feet, and 7-inch casing cemented at 6,111 feet, the well was washed in and flowed pipe line oil for six hours and then went dead. The hole was then swabbed and it showed 40 per cent oil and 60 per cent salt water. Screen and liner has been pulled and the casing is being recemented in an attempt to shut off the water. On a 15-minute drill stem test last week at 6,022-6,123 feet, it tested 15 thribbles of 37-gravity oil and 100 pounds of pressure. The well is about 2,000 feet north of the 5,900-foot production, opened the latter part of last year.

The second producer for the recently opened Cedar Point field, Galveston Bay, offshore from Chambers County, was finaled by Humble Oil & Refining Co. at No. 1 State, a northeast offset to the discovery well. The new well flowed 25 bbls. of 36.8-gravity oil per hour through a ¼-inch choke with tubing pressure 1,400 pounds. Production was obtained by perforating the casing in the sand section at 5,908-39 feet. Also offsetting the discovery well, Standard Oil Co. of Texas and Salt Dome Oil Corp. No. 1 State, is drilling in shale below 4,715 feet.

In the Seabreeze area, Chambers County, Sun Oil Co. No. 1 R. J. Barrow, A. Yarbo Survey, cored gas sand at 8,451-52 feet and sand showing oil and gas at 8,461-63 feet. The hole is bottomed at 8,502 feet and casing has been cemented for a production test.

Fairbanks Field

In the Fairbanks field, Harris County, one well was completed and two others had reached the sand. Henry C. Adams No. 1 Dawson, W. K. Hamblen Survey, flowed 325 bbls. on a potential test through a ¼-inch choke with tubing pressure 2,200 pounds and casing pressure 2,400 pounds. Production was obtained by perforating casing in the sand section logged at 6,819-32 feet. In the George Ayers Survey, Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 L. M. Day is bottomed at 6,853 feet and the well is being completed. H. E. Williams No. 1-A Vaja cored sand showing oil at 6,823-35 feet, total depth, and casing was cemented at 6,823 feet. Four additional locations were made by Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 J. P. Dawson is located in the W. K. Hamblin Survey. No. 1 R. Smith is situated in the J. Waugh Survey, No. 1 O. J. Post is located in the George Ayers Survey, and No. 1 Frances Bellmare is in the same survey.

In the Eureka field, Harris County, Jack Frazier is completing No. 1 Varner Realty Co., 750 feet from his No. 1 Vollmer-Neiman, recently completed for the first oil well. The hole is bottomed at 7,750 feet and casing was cemented on bottom, preparatory to testing sand at 7,714-42 feet. The sand section is slightly lower than the discovery well. Location has been made by the same operator for No. 2 Vollmer and Neiman, John Reinerman Survey, 933 feet east of the discovery well. Alamo Drilling Co. and others No. 2 Lackner is coring below 7,538 feet.

O. W. Killiam, who abandoned No. 1 J. J. Sweeney at the Ogburn Prospect, Harris County, has made location for a second test. It is No. 1 Mary Hamblen, in the W.C. R.R. Survey No. 11, about 1 mile south of the dry hole. No. 1 J. J. Sweeney logged enough showing to warrant setting casing.

Friendswood Area

Four wells were scheduled to be completed in the Friendswood field by Humble Oil & Refining Co. No. 1 Herman Hospital Survey, the most westerly well in the field, T. Choate Survey, topped sand at 5,518 feet and is being completed in sand bottomed at 5,790 feet. This is believed to be the highest well structurally in the field. No. 3 E. A. Gray, Perry and Austin Survey, is being completed in oil sand bottomed at 6,038 feet. No. 4-A Keisling, T. Choate Survey, topped sand at 5,958 feet and is being recompleted at a total depth of 6,043 feet after it showed a high gas-oil ratio. In the A. Whitlock Survey, No. 1-B Woodburn was completed at a total depth of 6,160 feet, but no gauge has been received. Locations were made for No. 8 E. A. Grey, Perry and Austin Survey, and No. 2 Herman Hospital, 750 feet southeast of No. 1, T. Choate Survey.

Offshore Test Deepening

Humble Oil & Refining Co. No. 1 McFaddin, 1 mile offshore from Jefferson County which last week proved the structure a shallow piercement type of salt dome, is being drilled deeper. Nine and five-eighths inch casing was cemented at 1,464 feet. Before drilling deeper, however, a drill stem test through perforated casing was made in the cap rock at 1,370-75 feet, and sulfur water was recovered. Salt was reported to have been topped at approximately 1,450 feet.

South Louisiana Fields

Interest along the Louisiana Coast was centered on two deep tests being drilled in Terrebonne Parish by the Fohs Oil Co., No. 1 Buckley and Bourg, section 77-19s-17e, topped a sand section at 11,630 feet and cored sand showing gas at 11,648-66 feet, the total depth. It is shut down waiting for orders. South of the Lirette field, No. 1 State, section 41-19s-19e, is drilling in shale at 10,188 feet.

Additional development for the South Roanoke structure was assured by Continental Oil Co. which obtained considerable farmed-out acreage from the Shell Petroleum Corp. It is reported that Continental Oil Co. has agreed to drill three deep wells for three-fourths interest. Part of the farmed-out acreage included the Joe Sturdivant acreage on which a distillate well was completed by Shell Petroleum Corp. A geophysical crew is working the area and the first well is to be started within the next few weeks.

In the South Elton field, Stanolind Oil & Gas Co., Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 3-B Calcasieu National Bank, section 27-7s-3w, was being tested through perforated casing at 9,140-55 feet. This hole was originally drilled to 13,210 feet. It is expected to be completed as a distillate well.

Union Sulphur Co. No. 2 Calcasieu National Bank, Woodlawn field, Jefferson Davis Parish, perforated casing at 8,904-08 feet, and flowed salt water. The perforations have been squeezed off and another test is scheduled to be made slightly above the original perforations. Another promising section was reported to have been logged at 8,100 feet. This is the second well to be drilled by the company on this prospect which is a joint operation with the Magnolia Petroleum Co. The first test was completed as a distillate well from sand just above 8,700 feet.

Production tests on Gulf Oil Corp. No. 4 State, the second well in the Quarantine Bay field, Plaquemines Parish, continue disappointing. Sand with an oil odor was cored at 8,312-21 feet and on a drill stem test it showed 3,420 feet of salt water. A previous test at 7,853-8,227 feet showed the same results.

Preparations were being made by Texas Co. to test No. 1 St. Mary Parish Land Co., Horseshoe Bayou field, St. Mary Parish. Seven and five-eighths inch casing was cemented at 11,062 feet, preparatory to testing the sand section which was logged from 10,752-10,938 feet.

COMPLETIONS ON TEXAS COAST

Brazoria County

Hastings field: Humble Oil & Refining Co. No. 11-B Cecil Brown, 6,104 feet, perforated casing 6,003-50 feet, 674 bbls., ¼-inch choke; No. 1 Day and McDeed, 6,085 feet, 615 bbls., ¼-inch choke. Stanolind Oil & Gas Co. No. 1 Froberg, 6,080 feet, perforated casing 6,044-78 feet, 462 bbls., ¼-inch choke. West Columbia field: Sterling Oil & Refining Co. No. 1 Van Pelt, sand 5,300-42 feet, 528 bbls., ¼-inch choke.

Chambers County

Anahuac field: Gulf Oil Corp. No. 8 Knowles, 7,122 feet, perforated casing 7,067-77 feet, swabbing and flowing 32 bbls. Humble Oil & Refining Co. No. 21 J. J. Clark, sand 7,008-90 feet, 640 bbls., ¼-inch choke; No. 2-C Drought, 7,208 feet, perforated casing 7,010-33 feet, 3,579,000 feet of gas. Turtle Bay field: Stanolind Oil & Gas Co. No. 1 Fannie Barnes, sand 6,024-28 feet, 564 bbls., ¼-inch choke.

Fort Bend County

Boling field: Mackhank Oil Co. No. 8-C Farmer, 4,768 feet, 537 bbls., ¼-inch choke. Thompson field: Humble Oil & Refining Co. No. 30-B-X Lockwood-Sharpe, sand 3,172-88 feet, 79 bbls., ⅛-inch choke.

Galveston County

Dickinson field: Bennett Oil & Refining Co. No. 1 Armstrong, 7,130 feet, perforated casing 8,116-28 feet, 409 bbls., ¼-inch choke. Mid-States Oil Co. No. 1 Wharton Weems, 9,152 feet, perforated casing 8,544-48 feet, 409 bbls., ¼-inch choke.

Harris County

Clinton field: Stanolind Oil & Gas Co. No. 1 Kate Sanders, sand 3,829-38 feet, 154 bbls., ¼-inch choke. Pierce Junction field: Rio Bravo Oil Co. No. 31-A Settegast, sand 4,262-81 feet, 442 bbls., ¼-inch choke. Tomball field: Humble Oil & Refining Co. No. 12 J. D. Reed, 5,576 feet, perforated casing 5,571-75 feet, 512 bbls., ¼-inch choke; No. 3 Thuck, 5,582 feet, perforated casing 5,570-81 feet, 7 bbls. per hour, ¼-inch choke.

Jefferson County

Amelia field: Stanolind Oil & Gas Co. No. 8 McCormick, 5,892 feet, perforated casing 5,888-90 feet, salt water, abandoned; No. 9 Sargl, 5,880 feet, 28 bbls., ⅛-inch choke. Spindletop field: Stanolind Oil & Gas Co. No. 1 Glady Street, 4,412 feet, plugged back 3,135 feet, 59 bbls., ¼-inch choke.

Liberty County

Hardin field: Fohs Oil Co. No. 1 Johnson-Finley, 7,713 feet, perforated casing 7,617-27 feet, 504 bbls., ¼-inch choke. Humble Oil & Refining Co. No. 1 Partlow, 7,578 feet, 483 bbls., ¼-inch choke.

Matagorda County

Bay City field: Pan American Production Co. No. 1 Else Richards, 9,695 feet, perforated casing 9,310-20 feet, 139 bbls., ¼-inch choke.

Orange County

Orange field: Union Producing Co. No. 2 Lutcher Moore Lumber Co., 7,315 feet, sand, plugged back 5,997 feet, perforated casing 5,960-75 feet, 33 bbls. per hour, $\frac{3}{16}$-inch choke.

Wharton County

Withers field: Texas Co. No. 46-C Pierce Estate, 5,549 feet, 306 bbls., 12/64-inch choke. Pickett Ridge field: C. Andrade No. 1-B Bishkin and Myers, 4,807 feet, abandoned.

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Among Gulf Coast Drilling Contractors

Al. Buchanan Drilling Co. of San Antonio, has reached an interesting depth on a projected deep test in Bastrop County for the Humble Oil & Refining Co. It is on the Hillsman lease, J. Cunningham Survey, and late in the week the hole was below 4,669 feet. Another rotary is being operated for the same company in Laguna Madre Bay, adjoining the Flour Bluff field in Nueces County. Two wells were completed in the newly opened East White Point field for Plymouth Oil and contracts were received for two more wells. Two other operations are listed for the same company in the Sinton field. Four strings of Buchanan tools are running for Stanolind Oil & Gas Co. in the Luby field, while in the Heyser field, one outfit is being used in developing Blanco Oil and Buchanan's leases located on the Calhoun County side of the field.

Cron & Gracey spudded a wildcat in the Midfield area, Matagorda County, for Texas Co. and have recently started a third test in the East Placedo field for Stanolind Oil & Gas Co. Routine operations continue at Gibson, Lake Lorg, Clam Lake and Tomball fields for Shell Petroleum Corp. and the Fohs Oil Co.

Harry L. Edwards Drilling Co. is moving to the Dickinson field for the Ken Ben Oil Co. and is making a production test of J. A. Fite No. 1 fee in the Sandy Point field, Brazoria County. His No. 2 Robertson, located in the East Telferner field, Victoria County, was recently completed for a good producer, and additional development will no doubt be done here.

Nicklos Drilling Co. received contract for an 8,000-foot test to be drilled in the old Lockport field, Calcasieu Parish, Louisiana, for the Continental Oil Co. The rig is being moved to the location and drilling is expected to be started within a few weeks. Two contracts were also received from the same company for No. 1 Hattie Haas and No. 1 Ledeau, which will be drilled in the Villa Platte field, Evangeline Parish, where No. 1 Vidrine, being drilled for the same company, is coring below 9,328 feet.

Rutherford Drilling Co. is moving a rig to the Conroe field, Montgomery County, Texas, for Humble Oil & Refining Co. This will be the first test in this field in several months. Contract was received from Frost and others for a well to be drilled in the active West Columbia field, and the rig is being moved from the West Saxet field in Nueces County, where two wells are being completed for Phillips Petroleum Co. and Renwar Oil Corp. One rotary is being used on a wildcat in Matagorda County for Rutherford Oil Corp, while another is operating in the Van Vleck field for the Skelly Oil Co.

Smith & McDannald completed a second producer in the Port Barre field for the Pan American Production Co.; have three rigs operating in the Dickinson field for Pure Oil Co.; one in the Hastings field for Stanolind Oil & Gas Co., and are rigging up for another test in the Long Lake field for Tidewater Associated Oil Co. Another rotary is being operated in the Five Corners field for themselves.

The first wildcat to be started in the submerged waters along the Lower Gulf Coast got under way the past week when Trinity Drillers of San Antonio spudded Coast Line Oil Co. No. 1 State located in Tract 320 in Redfish Bay. Several proposed locations have been made in the various bays along this particular section of the coast line.

This crew is in charge of Stanolind Oil & Gas Co.'s drilling operations at the Big Hill dome, Jefferson County: W. M. Forrest, J. L. Bullock (driller), A. D. Pattillo (derrick man), J. D. Wallace, J. C. Bell and Gilbert R. Dugas, (fireman)

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West, Central and Panhandle Texas

Denver-Wasson Field Grows to 28,000 Acres; 44 Wells

By MITCHELL TUCKER

FORT WORTH, Tex., Apr. 25.—North Permian Basin activity continues to be led by the Denver-Wasson area, which field has now assumed a northwest-southwest trend about midway across the Gaines-Yoakum County lines, and comprises about 28,000 acres within the indicated productive territory. There are 44 oil wells in the field, having a total average daily production of 4,400 bbls. (100 bbls. per well per day allowable). Drilling or rigging up wells number 19.

Five miles to the northeast, nine wells are drilling in the Bennett field of Yoakum County, where its total 14 producers yield about 1,600 bbls. daily. Allocation of production in this field is on a 50 per cent potential, 50 per cent acreage basis, permitting an average allowable of 114 bbls. per well in April. No test wells have been drilled in the area between Bennett and Wasson. The occurrence of saturation is about 150 feet lower subsea at Bennett than at Wasson, but some informed geologists continue to predict an eventual linking of the two areas into one. If so, it will prove to be the largest field in the Permian Basin from an areal standpoint.

Gaines County

In south central Gaines County, the two wildcat wells seeking to extend the one-well Kirk field, are reaching the critical stage and bear close watching.

Yoakum County

Gulf Oil Corp. No. 1 Dixon, section 609, about midway between the Bohago and Denver areas of Yoakum County, pumped 71 bbls. in 19 hours on preliminary testing, total depth 5,491 feet.

Shell Petroleum Corp. No. 1 Roberts, southwestern Yoakum County wildcat, and a possible 3-mile extension of the Denver area, continues to recover bleeding cores with slight porosity, the last ones being from 4,900 to 4,953 feet. Coring continues below this point.

Ector County

In Ector County, Sinclair Prairie Oil Co. and others' attempt to open a new pool, or extend the Harper field 2 miles southwest, was discounted last week when No. 1 Paul Moss encountered sulfur water at 4,245-53 feet. The well is now being plugged back in order to make production tests of the sections logged at 3,690-3,898 and 4,084-91 feet.

Ordovician Tests

Magnolia Petroleum Co. and others No. 1-A McKee, Ordovician wildcat in the Imperial area of northern Pecos County, is reaming down core hole to total depth of 5,680 feet in shale and lime. No further showings have been reported, after the first flows of oil made in the upper portion of the Simpson lime section.

In western Tom Green County, Humble Oil & Refining Co. No. 1 Lewis and Wardlow, section 5, Block 17, H.&T.C. Survey, 10 miles west of San Angelo, is being plugged and abandoned. Drill stem tests from 7,566 to 5,786 feet showed only sulfur water. Total depth is 7,589 feet in the Ordovician.

WEST CENTRAL TEXAS

Scheduled drilling of Palo Pinto lime in the Forest Development Corp. and P. S. Kendrick No. 1 T. G. Hendrick, in northwestern Shackelford County, and staking of another wildcat northeast of the Ivy pool held most attention for West Central Texas at the close of the week.

Top of the lime, which produces in the Avoca and Ivy pools, was logged at 3,154 feet where operators underreamed 5-inch casing before drilling ahead. Production in the test, located on the regional northeast trend play from the Avoca pool, is held likely to extend Shackelford's Canyon lime area over a 5-mile territory.

Location is in section 1, A.B.&M. Survey. To the southwest, Ungren & Frazier had set 8-inch pipe at 1,907 feet on the No. 1 J. S. McKeever, also reportedly high on structure from the Ivy pool.

J. G. Hammond, Inc., of Fort Worth let contract to S. B. Roberts company for the drilling of a third outpost, between the No. 1 McKeever and pool production. Rig was to be moved to No. 1 Coker and others, 1,620 feet from the west and 1,020 feet from the north lines of section 159, B.B.B.&C. Survey.

In the Avoca field, Fain & McGaha Oil Corp. and Sinclair Prairie drilled in the first well on the Swedish Lutheran Church property as a northeast extension at a natural gauge flow of 475 bbls. in six hours from pay at 3,228-40 feet. A south offset, Humble Oil & Refining No. 7 J. W. Hollums flowed 564 bbls. in four hours through seven-eighths inch choke after a 1,000-gallon acid treatment at 3,226-43 feet, total depth. Both are near the east line of section 190, B.B.B.&C. Survey.

Humble prepared to retest cement plugs to determine whether water had been shut off on the No. 1 I. N. Irwin, wildcat showing oil from the Fisher County pay about 1¼ miles east of the southwestern Jones County Noodle Creek field. Twice recemented without results, it was slated to test at 2,550-67 feet where saturation had been cored. It is in the SW section 48-18, T.&P. Survey.

Ungren & Frazier of Abilene moved machine for spudding a 2,500-foot wildcat 3 miles north of Hawley, the No. 1 W. E. Fellows being staked 990 feet from the north and 330 feet from the east lines of the S half section 25-15, T.&P. Survey.

In southern Eastland County, Hayner, Reaves & Hose No. 1 Larkin, 3 miles northwest of Rising Star, showed oil in rotary circulation at 2,574-95 feet and 2,525-56 feet, the upper section being cored 18 feet with a 5-foot recovery of saturated lime of the Caddo. It drilled ahead however to test the Ranger below 2,950 feet. Location is in the NW section 40, E.T.R.R. Survey.

PANHANDLE

Thirteen new locations and nine completions were made in the Panhandle district last week. Total new potential from the nine new oil wells was 3,290 bbls. This is the third consecutive week that no gas wells have been completed in the district.

The Sherman County wildcat, about 18 miles north of the Panhandle gas field in Moore County, I. T. I. O. No. 1 Davis will be plugged back from its total depth of 3,840 feet and completed as a gasser. Damaged casing and a fishing job prevented drilling deeper to the original objective in search of oil production. About 30,000,000 feet of sweet gas was logged up the hole about 800 feet, and operators are now preparing to complete the well in that zone.

The southeast Gray County wildcat of Lone Star Gas Co., on the Fowler lands in section 118, Block 23, H.&G.N. Survey, just south of the gas producing area, did not look so promising as a new oil discovery last week after preliminary testing. In 24 hours, the well pumped 80 bbls. of fluid, 48 per cent oil.

CENTRAL TEXAS COMPLETIONS

Shackelford County

Roeser & Pendleton No. 48 Dawson-Conway, pumped 82 bbls. after 40-quart shot at 1,609-17 feet, total depth 1,621 feet; No. 90-A W. I. Cook, dry and abandoned at 3,119 feet. Charter Oil & Gas Co. No. 2 A. J. Swenson, dry and abandoned at 1,608 feet. Roeser & Pendleton and Humble No. 11-A J. P. Morris, dry and abandoned at 1,762 feet. Dickey Brothers No. 3 B. S. Walker, dry at 508 feet. Frank Whitten & D. L. Byars No. 1 Diller, dry and abandoned at 533 feet. Hoffman & Page Co. No. 27 J. P. Morris, 12 bbls. and 10,000 feet of gas at 1,584-95 feet, shot 20 quarts. Charles J. Kleiner No. 2 J. P. Morris, 4 bbls. daily, shot 25 quarts from 1,430-38 feet, total depth 1,713 feet.

Throckmorton County

A. B. Swain No. 1 Jack Forth, dry and abandoned at 510 feet. Moutray Oil Co. No. 1 H. C. Herron, dry and abandoned at 1,014 feet.

Fisher County

Bond Oil Corp. No. 1 Bertram Estate, dry and abandoned at 3,606 feet.

Jones County

Ungren & Frazier No. 12-C Dorsey, deepened, 38 bbls. daily at 2,320-29 feet. Humble Oil & Refining Co. No. 7 J. W. Hollums, flowed 564 bbls. in four hours after 1,000-gallon acidization at 3,226-43 feet. S. J. Hufstutler No. 2 R. L. Faver, dry and abandoned at 2,256 feet. Fain-McGaha and Sinclair Prairie No. 1 Swedish Church, flowed 475 bbls. in six hours from natural lime at 3,228-40 feet. Fain-McGaha and S. B. Roberts No. 3 W. H. Daughtry, flowed 314 bbls. in 21 hours after 40-quart shot at 1,923-52 feet. Dale H. Dorn and H. G. Daniels No. 1 F. T. Moore, dry and abandoned at 2,485 feet.

Callahan County

Wooten & Beams No. 1 J. F. Dyer, dry at 1,155 feet. C. R. Nelson No. 1 T. J. Brooks, dry and abandoned at 225 feet.

WEST TEXAS COMPLETIONS

(24-hour gauges)

Crane County

Cardinal Oil No. 10 Wooley, dry and abandoned at 2,157 feet. Gulf Oil Corp. No. 12 Henderson, 3,233-3,531 feet, 4,160 bbls. Mead Production Co. No. 3-D Cowden, dry and abandoned at 2,633 feet.

Crockett County

Choate & Hogan No. 1-K University, 1,457-1,575 feet, 104 bbls.

Ector County

Atlantic Refining Co. No. 3-F Cummins, 4,140-4,288 feet, 176 bbls.; No. 4-C Rumsey, 4,180-4,280 feet, 649 bbls.; No. 1-B Wight, 4,150-4,245 feet, 295 bbls. Barnsdall No. 8 Cowden, 4,058-4,180 feet, 1,225 bbls.; No. 4 Foster, 4,030-4,180 feet, 899 bbls. Gulf Oil Corp. No. 3-A Connell, 3,438-3,660 feet, 199 bbls.; No. 87 Goldsmith, 4,085-4,205 feet, 992 bbls. Humble Oil & Refinery Co. No. 5-B Cowden, 4,179-4,216 feet, 829 bbls. Mid-Continent Oil Corp. No. 7 Cowden, 4,040-4,210 feet, 710 bbls. Shell Oil Corp. No. 4 Slator, 4,240-85 feet, 314 bbls. Superior Oil No. 5 Cowden, 4,000-4,220 feet, 921 bbls. Texas Co. No. 1-A Parker, 4,065-4,242 feet, 264 bbls.; No. 1-B Parker, 4,005-4,200 feet, 949 bbls.

Fisher County

Bond Oil Corp. No. 1 N. Bertram, dry and abandoned at 3,607 feet.

Gaines County

Amon G. Carter No. 1 W. McCarty-Moore, 4,832-4,997 feet, 1,075 bbls.

Pecos County

Cardinal Oil No. 1-36 White & Baker, 1,618-70 feet, 30 bbls. Sayre Oil Co. No. 1 Potts, 1,770-1,800 feet, 14,000,000 feet of gas. W. H. Street No. 3 Pecos Valley,

(Continued on Page 104)

HAPPY
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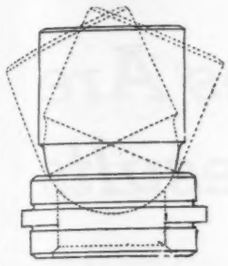

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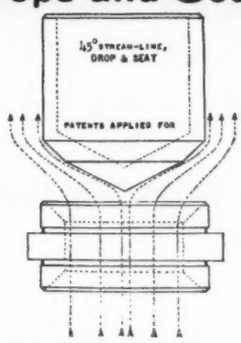

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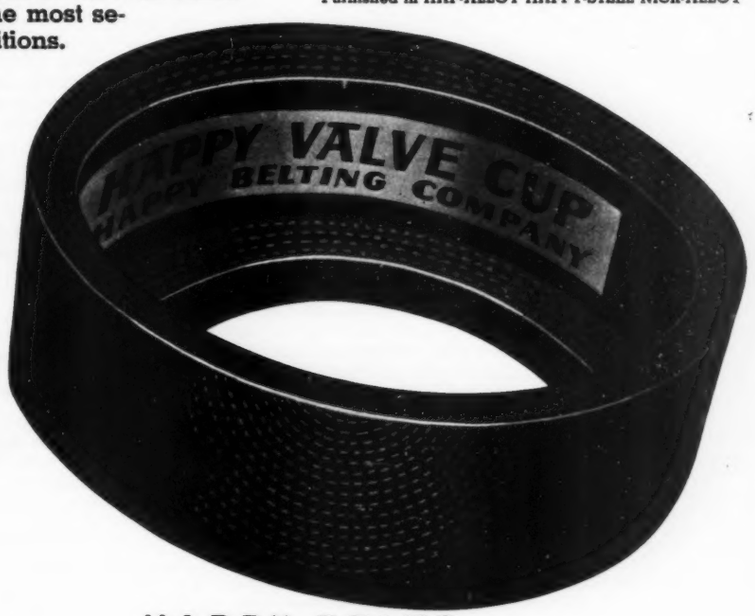

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Michigan Field Report

16 Oil Wells, 10 Failures Are Recorded in Week's Results

By
O. C. PRESSPRICH

SAGINAW, Mich., Apr. 25.—Completions in numbers dotted the Michigan oil map in no fewer than nine fields the past week in a burst of spring activity which ended several weeks' slump and forecast an active season in all sectors.

Top ranking producer of the week in the Clayton-Arenac field indicated future drilling activity there. Three drilling permits in a week indicated a start for more extensive exploration of the area. The Arenac test of Swanson Consolidated Oil Co. and Rowmor Corp. No. 3 Shephard, SW NW SW section 4-20n-4e, which developed a 750-bbl. initial under curb due to lack of storage, blossomed the past week into an 850-bbl. natural producer. The well runs close to being the largest in the Arenac field, where average wells produce less than 200 bbls. daily.

Edenville, however, continued the most active spot, with three tests tapping the Dundee limestone for as many new producers. Exploration in Edenville indicated forcibly that Chapman's discovery wildcat is near the northwestern edge of pay territory, and that further development probably will be concentrated south and east of the discovery.

Sun Oil Co. No. 1-B State, NW NW SE section 27-16n-1w, led the week's confirmations in Edenville with a flow of 850 bbls. in the first 48 hours. The test was deepened 4 feet to 3,733 feet, and raised its production to slightly more than 100 bbls. in the first two-hour flow. The Sun-State test is two locations south of the discovery well. Gordon Oil Co. No. 1 Verity, NW SW NW section 26-16n-1w, four locations east of discovery, hit quantities of oil and gas 49 feet in the Dundee, and was rated a flow of 175 bbls.

Mammoth Producing & Refining Corp. No. 2 Higgins, NW NW NE section 27, was drilled in Thursday night, furnishing a big surprise with an estimated 700-bbl. daily initial. The Mammoth test is one location south of Smith Petroleum Co.'s dry hole and one east of Garfield Petroleum's dry one, and thus gave indication of being the extreme northwestern corner of the pool tapped at Chapman's discovery.

The one dry Edenville test of the week was Garfield Petroleum Corp. No. 2 Higgins, NE NE NW section 27-16n-1w, which was abandoned. The Garfield test is two locations north and one location west of the discovery well. As dry tests gradually fringe the west and north boundaries of the field, producing wells are reported to be showing small amounts of Dundee water, insufficient, however, to be a menace so far. Refineries where Edenville crude is handled report quantities of salt, creating a refinery problem.

Salem Township

One of the best wells in the Salem field to date added materially to the daily potential of the field last week when Regal Dutch Petroleum Co. No. 6 Hardy, SE SE NW section 21-4n-13w, came in with an acidized production of 600 bbls. daily. The test was an edge venture in the central-south portion of the field, and unquestionably will lead to greater activity in that area. One other small producer was added to the field at Muskegon Oil Corp. No. 4 Hardy, NE SW SE section 16-4n-13w, rated as a 45-bbl. producer.

Allegan County

In Trowbridge Township, J. E. Flanigan No. 1 Bridgeman, NE SW NW section 29-1n-13w, was reported dry the past week, and will be abandoned.

In Monterey Township, three dry holes and an above the average producer formed the record of Monterey's new field. The producer was Sim B. Hood No. 1 Wright, NE SW SW section 9-3n-13w, which rated 500 bbls. daily after acid, to become one of the best wells in the Allegan field, rivaling any in the steady Salem pool. The three dry holes in Monterey were R. E. Olds No. 1 Riksen, SW SE NW section 16-3n-13w, Sprenger Bros. No. 1 Miller, NW SE SE section 15, and Voorhees Drilling Co. No. 1 Wuiss, SE NE NE section 21.

Isabella County

In Fremont Township, speculation continued the past week as to the possibilities of the Fremont area tapped recently at Bell & Marks No. 1 Fox Sisters, SW SE SE section 5-13n-5w. To date the test has flowed, swabbed and pumped 600 bbls., averaging at present about 40 bbls. daily on pump. Activity has subsided somewhat, with many small companies reported holding acreage in the vicinity following the first rush. Oil was first tapped in the wildcat on April 9 before casing had been run, with the first pay at 3,686 feet, in the Monroe limestone. A small amount of water was evident, which is decreasing, and in time will seep itself out, operators said. The hole bottomed at 3,700 feet. The test was halted on completion as one likely to open up a new Isabella County pool.

Arenac County

Led by the ranking Michigan producer of the week at Swanson Consolidated Oil Co.'s 850-bbl. producer, the Arenac field added one other favorable test and a dry hole in Clayton. E. H. Linabury's No. 1 Demura, SW SW NW section 25-19n-3e (Adams Township), developed 100-bbl. acidized production, and Detroit-Mecosta Co. No. 1 Metzger, SE NW SE section 5-20n-4e (Clayton Township), proved dry and will be abandoned.

Ottawa County

Two dry tests in Polkton and Zeeland townships were to be abandoned after failure to log a pay. They were Albert Maring No. 1 Flagel, NW SW SE section 3-7n-14w (Polkton Township), and Lentz & Miller No. 1 Kok, NE NE SW section 29-5n-14w (Zeeland Township).

Gladwin County

In Bentley Township, continuing a steady development in various sectors, the Bentley field added four producers and a semi-completion during the week. Turner Petroleum Corp. No. 1-E State, NW NE NE section 29-17n-2e, gauged an estimated 125 bbls. after acid, and later settled down to 75 bbls. daily production. Gordon Oil Co. No. 1-E State, NW NW NW section 28, was rated at 50 bbls. settled production after acid. Pyramid Oil Co. No. 1 Lake, SW SE SE section 20, was acidized and raised its production to an estimated 100 bbls. Mammoth Producing & Refining Corp. No. 2 Lake, SW SW SE section 20, rated a small producer estimated at 30 bbls. naturally, with acid treatment scheduled. McClanahan Oil Co.'s test in section 35 was treated and rated slightly over 75 bbls.

In Buckeye Township, only two completions were recorded for the week in Michigan's most prolific pool. J. E. Flanigan's No. 1 Brabon, NE SW NE section 9-18n-1w, a west edge test in the north (Wicklund) pool, developed an acidized production of 300 bbls. daily. The well might be rated as a surprise owing to its western location, with dry holes in the immediate vicinity. In the south (Oard) pool, Kirkham-Kales Co. No. 3-C State, SE SE SE section 22-18n-1w, a west extension of the so-called midway pool, made an acidized show of 100 bbls. to indicate possibilities of an extension of the western boundary of the productive area. While located on the eastern edge of section 22, the successful test opened up several locations in the sector, especially to the south, extending into section 27. Northern extension of the so-called midway pool previously has been proved at least temporarily unprofitable.

Mammoth Producing & Refining Corp. set somewhat of a record last week in proving up prolific qualities of north Buckeye wells when its No. 4 Jakab, NE NE SE section 10-18n-1w, showing gradually decreasing production after having flowed for approximately nine months, was acidized for the first time and stepped up production to approximately 700 bbls. daily. The Mammoth-Jakab is west of the discovery sector of the north (Wicklund) pool, five locations west and three north of the Wicklund discovery well.

In Tobacco Township, Burris, Munger & McCollister No. 1 McMahon, NW NE NW section 1-17n-1w, was acidized into a small commercial producer, estimated at 25 bbls. daily. The test is a south extension of section 36 Buckeye play.

Midland County—Warren Township

J. V. Wicklund Development Co. No. 3 Michigan Royalty, NE NW SE section 24-16n-2w, an extension test, will be abandoned after failure to rate as a commercial producer.

Kalamazoo County—Oshtemo Township

The second failure in the Kalamazoo area in less than a month was recorded when Premier Oil Corp. No. 1 Bourner, SW SW SW section 3-2s-12w, came in dry. The test logged a favorable show of oil in the Dundee, but failed to rate commercially.

Bay County—Kawkawlin Township

Gulf Refining Co. No. 1 Swantek, NW SE SE section 35-15n-4e, swabbed 5 bbls. this week, and is scheduled for acid treatment. The test is being watched closely in view of unfavorable shows elsewhere in Bay County.

Ogemaw County—West Branch Township

Michigan's most northerly oil pool added a producer the past week with completion of Muskegon Development Co. No. 4 Towner, NE SE NW section 28-22n-2e, rated at 50 bbls. daily after acid.

Montcalm County—Winfield Township

A 1,600,000-foot gasser was completed at Taggart Bros. No. 2 Olson, C SW section 8-12n-9w.

Clare County—Grant Township

Whether Grant Township holds the possibility of oil in commercially paying quantities, as well as gas, will be answered at Gulf Refining Co. No. 1 Doherty, SW SW SW section 25-17n-4w. The well was cemented at 3,739 feet. The Gulf test is 1 mile northeast of Clare, a direct north offset to Gulf's first test of the sector which struck a 14,000,000-foot gasser in the Michigan Stray sand. The second test was started with a rotary rig which progressed to the Marshall at which point the rig collapsed.

Another Clare test in another sector which was spudded in the past week is S. B. Giglemire Trust No. 1 Van Horn, NE SW NW section 3-18n-6w (Freeman Township). The only other test previously drilled in Freeman, about 4 miles to the south in section 33, was a failure.

Mecosta County

Three Mecosta County wildcats were due to sample Dundee structure early this week and were attracting attention of operators. Mitchell Oil & Gas Co. No. 1 Blodgett, C SE SE section 23-13n-10w (Aetna Township), 1 mile west of the village of Morley, was below the 3,000-foot level. The test, originally drilled for gas, lies between two capped gassers. In Sheridan Township, Frank Hebard No. 1 Weeks, SE NE SE section 32-15n-7w, 1 mile west of Remus, was nearing the Dundee. On the north edge of the Six Lakes gas field, Jetter Drilling Co. No. 1 Deakins, SE NE NE section 28-13n-7w, (Millbrook Township) was below 2,500 feet.

North Louisiana, Arkansas

By GEORGE WEBER

Production Cut Is Ordered in the Arkansas End of Rodessa

SHREVEPORT, La., Apr. 25.—Proration in Arkansas commanded the center of attention in this area during the past week. An appreciable cut in Rodessa, Miller County, production was made by the Arkansas Board of Conservation following a statewide hearing in El Dorado on Wednesday. Little of outstanding interest developed in field and wildcat drilling during the week.

A good producer is indicated for the northwest section of the Shuler field, Union County, Arkansas. In contrast, a south outpost to the Holloway production in Cotton Valley, Webster Parish, Louisiana, showed as a failure in that formation. Operators of the wildcat which last week made news in the Village area of Columbia County, Arkansas, are coring deeper before attempting to complete the indicated field opener. The Lisbon field in North Louisiana, despite a curtailment of pipe line purchases, is showing a marked increase in drilling due to attraction of new operators by a new spacing rule and recent outpost successes.

Arkansas Proration

Following a long period of relatively ineffective control of Arkansas production, the board of conservation made decisions which point to a greater effort toward conservation of crude reserves. The principal result of the meeting held in El Dorado was a change in the basis for determining the allowable of Miller County wells, and a drastic cut in production for the part of the Rodessa field lying in that county.

The top allowable for the Arkansas extension of Rodessa was set at 8,000 bbls., a 46.7 per cent decrease from the former total of 15,000 bbls. In addition, the allowable gas-oil ratio, above which downward adjustments are made in individual well allowables, was reduced from 5,000 feet to 3,500 feet per barrel of crude. The high gas-oil ratio in many of the wells of the field results in the further reduction of the total field allowable to 6,681 bbls. per day. This is figured on a newly devised basis, and represents an average per well production of about 835 bbls. daily.

The total uncorrected field allowable, now 8,000 bbls. per day is allotted half to an acreage factor and half to the number of wells. The change from a bottom-hole pressure basis was made necessary by the rapidly changing pressure gradient in the field, and the difficulty in maintaining key wells which did not go to artificial lift.

Provision was also made for allocating gas production for eight wells which have recently obtained an outlet. This allowable is to be based on market demand and the total figure will be divided among the wells; two thirds according to the product of their reservoir pressure and acreage, and one-third according to their potential production.

For the Shuler field, no allocation has yet been set. It will be issued after the board has received results of a bottom-hole pressure survey to be made early in the week. A per well allowable of 500 bbls. was suggested for the field by some operators at the hearing. This allowable applies to production in the Jones sand.

The Reynolds lime production will not be prorated until a third well now drilling in that section is completed, giving the board more information upon which to base the field rules.

Rodessa Completions

The Jefferson-Lodi area of Marion County, Texas, added three producers to Rodessa during the week. Arkansas-Louisiana Gas Co. No. 1 Hill, Gillespie Survey, made 60 bbls. per day on a ¼-inch choke after acidizing with 750 gallons. Tubing pressure is 300 pounds and casing pressure 1,100 pounds and total depth is 6,002 feet.

Shell Petroleum Corp. No. 1 Schluter, Smith Survey, gauged 756 bbls. per day on a ¼-inch choke with tubing pressure of 825 pounds, casing pressure of 1,025 pounds and total depth 6,064 feet.

Union Producing Co. No. 7 Hutchinson, Coy Survey, made 516 bbls. per day on a ¼-inch choke, with tubing pressure 300 pounds and casing pressure 575 pounds. Total depth is 6,110 feet.

In the Miller County, Arkansas, section of the tri-state field, four new producers were turned into tanks. F. W. Burford No. 2 Ahern, section 10-20-28, made 179 bbls. per day on a ½-inch choke with casing pressure 350 pounds and no tubing pressure. Total depth is 6,140 feet.

W. M. Layton No. 2 McKellar, section 15-20-28, made 80 bbls. per day on a ¼-inch choke; no tubing pressure, casing pressure of 475 pounds; total depth 6,025 feet.

McClanahan & Feazel No. 2 Eason, section 12-20-28, made an initial of 50 bbls. per day through a 1¼-inch choke; no tubing pressure, 350 pounds on the casing; total depth 6,112 feet.

Mrs. S. O. Thompson No. 2 Greer, section 11-20-28, flowed 258 bbls. in 12 hours on a 40/64-inch choke, tubing pressure of 75 pounds, casing pressure 500 pounds; total depth 6,155 feet. Three of the wells are located in the higher-pressure areas of the field, and the fourth, McClanahan & Feazel No. 2 Eason, is in the center of the lowest pressure area, hence its low production.

Estimated Daily Production

Estimated daily gross production all companies week ending April 23, follows:

NORTH LOUISIANA

	Barrels
Bellevue	685
Caddo light	3,855
Caddo heavy	2,380
Converse	585
Cotton Valley heavy	100
Cotton Valley light	*7,750
De Soto and Red River	1,445
Elm Grove	365
Havnesville	3,9[illegible]
Holly	95
Homer	2,650
Lisbon	10,715
Pleasant Hill	105
Rodessa	41,620
Sarepta-Carterville	225
Sligo	350
Sugar Creek	315
Urania	2,790
Zwolle	1,015
Total	79,985

SOUTH ARKANSAS

Buckner	410
Champagnolle	1,200
El Dorado	1,870
Lisbon	265
Miller County	380
Nevada	650
Rodessa	8,015
Shuler	19,685
Smackover light	2,050
Smackover heavy	15,875
Stephens	540
Troy	1,250
Urbana	1,230
Village	285
Total	53,705

Texas side of Rodessa field 37,965 bbls. daily.

*3,315 bbls. is distillate.

Lisbon Completions

The Lisbon field of Claiborne and Lincoln parishes has two new producers. Gulf Oil Corp. No. 1 Whitman, section 2-20-5, gauged 1,000 bbls. per day on a 22/64-inch choke after treating with 1,000 gallons of acid. Tubing pressure was 425 pounds and total depth 5,205 feet.

E. T. Oakes and others No. 1 Whitman, section 2-20-5, made 25 bbls. per hour on a ¼-inch choke, with tubing pressure of 350 pounds and total depth 5,277 feet. The well was treated with 3,000 gallons of acid.

The 25 per cent cut made in pipe line takings by the Grogan Oil Co., operators of the Caddo Crude Oil Purchasing Co., had no evident effect during the week on drilling operations, which may show some tapering off shortly. The past week saw the initial operations of four new rigs in the field, attracted by a new spacing rule and allowable. It is feared by operators that the outlet reduction may bring a cut in the field allowable, a continuation of the outlet difficulties experienced by Lisbon producers last autumn.

Cotton Valley Holloway

The Holloway sand of Cotton Valley was producing in its tenth oil well this week, upon the completion of Ohio Oil Co. No. 5 Holloway, section 23-21-10. The well flowed 224 bbls. in 15 hours through a ½-inch choke; tubing pressure of 670 pounds; casing pressure of 900 pounds; total depth 5,849 feet. The sand was cored at 5,603-15 feet.

A mile-south outpost well, Midstates Oil Corp. No. 1 Welori Lumber Co., last week showed as a failure in the Holloway sand. The test, located in section 3-20-10 cored the top of the Travis Peak at 6,029 feet but encountered no Holloway, and was last reported drilling below 6,275 feet.

In the old Shongaloo gas field of Webster Parish, Magnolia Petroleum Co. is reported to have cored a section at 9,356-60 feet that showed traces of oil. The deep test has had several showings of gas and distillate. It is drilling ahead to the Big lime.

Shuler Developments

The northwest edge of the Shuler field continued to show the expected good Jones-sand section this week. The latest well to core the pay is Lion Oil Refining Co. No. 1 Mayfield, Lot 3, section 18-18-17. The Jones sand was topped at 7,520 feet and 74 feet of the saturated sand was cored. The Reynolds oolitic lime was topped at 7,624 feet and operators carried the well to 7,690 feet. The well indicates the continuance of good sand sections to the northwest, as anticipated early in the development of the field. In addition to the continuous sand body which has been termed the Jones sand, the dense sand body underlying saturation in most Shuler wells, and averaging about 25 feet in thickness has shown some porosity and saturation in a few wells. The name Jones sand which was applied only to the 75-foot saturated section previously is considered a misnomer, and should include the dense underlying section immediately above the top of the lime, in view of the few showings of oil encountered in it.

One completion marked developments in Shuler during the week. The Lion Oil Refining Co. No. 5-A Edna Morgan, Lot 7, section 18-18-17, came in making 1,439 bbls. per day on a ½-inch choke with tubing pressure of 625 pounds and casing pressure of 975 pounds. Perforations were made at 7,538-66 feet and total depth is 7,630 feet.

Two drilling wells in the field, Phillips Petroleum Co. No. 3 Justiss and No. 3 Marks, are now headed for completion in the deeper Reynolds lime. They offset the two present producers in that section, Lion-Phillips No. 1-A Morgan, and Marine Oil Co. No. 4 Justiss, on the west.

Daily average production in Shuler during the past week was divided as follows: Jones sand 16,030 bbls., Morgan sand 2,255 bbls., Reynolds lime 625 bbls. distillate and Reynolds lime 775 bbls. oil. The deep lime production is not yet prorated, but orders will be issued pending the completion of Phillips No. 3 Justiss.

Union Producing Co. arranged to run a string of 7-inch casing to about 10,600 feet in No. 2 Brownfield, section 5-19-5, deep test in the Sugar Creek district of Claiborne Parish.

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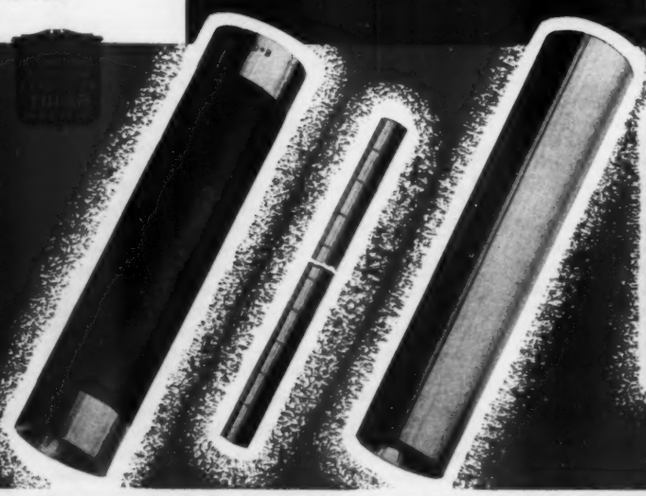

CONTINENTAL

Southwest Texas District

By
F. L. SINGLETON

Second Frio Pool in the Alice Area Starts New Campaign

CORPUS CHRISTI, Tex., Apr. 25.—The opening of Frio production in the Alice area, Jim Wells County, with the completion last week of H. H. Howell No. 1 Reed and Lindsey, was by far the outstanding development in the Southwest district. The completion has attracted wide attention and an extensive drilling campaign is anticipated.

On the first 12-hour gauge through a 7/8-inch choke, it flowed 400 bbls. of 44-gravity oil with tubing pressure 950 pounds and casing pressure 1,050 pounds. During the last 24 hours, the well was placed on a 1/8-inch choke, and flowed 177 bbls., with tubing pressure 900 pounds and casing pressure 1,085 pounds. Production was obtained by perforating the casing at 5,375-85 feet. Sand was logged from 5,375-5,425 feet, the total depth.

The well is 5 miles southwest of the town of Alice and about 2½ miles southwest of Presnall & Moser No. 1 Bankers Mortgage Co., recently completed for a gas well at 3,492-95 feet.

Approximately 1½ miles west of the Howell discovery, Tom Graham No. 1 Martens tested 200 pounds of working pressure on a 2½-minute drill-stem test at 3,521-33½ feet, and 5½-inch casing has been cemented at 3,521 feet preparatory to completing as a gas well. Due to the anticipation of an active drilling campaign, it is reported that this well is being completed as a gasser to furnish fuel for other drilling rigs.

A Disappointment

East of Ben Bolt, King Survey 62, and located in the same general area, Richardson No. 1 Garcia was swabbed dry through perforated casing at 5,950-6,000 feet, and the well has been temporarily abandoned. The rig is being moved in for Earl Calloway No. 1 Cook, 5,600 feet due east of No. 1 Reed and Lindsey on a 687.22-acre tract. Location has also been made for H. H. Howell No. 2 Reed & Lindsey, 933 feet south of the discovery well.

This is the second field to be opened from the Frio formation in Jim Wells County and it is generally assumed that the structure will cover a large area. The discovery well was drilled in the center of a 600-acre drilling block with protection acreage held by various independent and major companies. The railroad commission has temporarily adopted a 20-acre well spacing and 20-acre proration units for this field and a hearing will be held in Austin on May 5 as to whether the rule should be made permanent.

To the southwest in the East Premont field, Magnolia Petroleum Co. made location for No. 9 Seeligson, 1,320 feet north of No. 8 Seeligson in the Antonio Ramirez Survey. This was the first field to find production in the Frio formation and has led to deeper drilling along the Jackson Trend.

New Pay in Saxet

A new producing sand for the southwest part of the Saxet field, Nueces County, was opened by Sultex Oil Co. No. 1-B Taggert, which flowed 46 bbls. of pipe line oil in 6 hours through a 9/64-inch choke, with 1,330 pounds of casing pressure and 1,200 pounds tubing pressure. Production is from the Frio sand at 6,835-41 feet, the total depth. A north offset to the well has been started by Rand Morgan on his No. 1-D fee in the B.S.&F. Survey 403.

This county received location for an interesting 7,000-foot wildcat test to be drilled by Mills Bennett Production Co. and others on the No. 1 Fred Talley lease, 466 feet from the north and east lines of the southwest quarter of section 10. George H. Pauls Subdivision of the Driscoll Ranch. Location is 4 miles south of Robstown on a geophysical prospect of several thousand acres.

Three wells were nearing completion in the Luby field, Nueces County, Seaboard Oil Corp. No. 18 James Luby, Lot 4, Share 2, is cleaning into the pits after perforating casing at 5,058-61½ feet. Stanolind Oil and Gas Co. No. 7 McCann, F. M. Falcon Survey, logged shale and sand showing oil and gas at 4,290-4,355 feet, and 7-inch casing was cemented at 4,350 feet. Same company's No. 6 McCann is bottomed at 5,062 feet with 7-inch casing cemented at 5,055 feet.

In the West Saxet field, Southern Minerals Corp. No. 1 French recently abandoned at 6,037 feet is preparing to make a production test after taking side wall cores that showed oil sand at 3,872-85 feet. A cement plug was set at 4,030 feet and a drill stem test will be made before setting casing.

Prospects of opening commercial production in the Greta sand, 9,200 feet east of the Plymouth field, San Patricio County, were not encouraged by Humble Oil and Refining Co. No. 1 Smith and Tolbert which flowed practically 100 per cent salt water. Previously on a drill stem test through perforated casing at 4,820-22 feet, 3,300 feet of oil and 400 feet of salt water was recovered. The perforations have been squeezed off and it is not known if another test will be made of the present section or if the hole will be carried deeper. One and three-quarters mile east of the Taft field, the same company made location for No. 1 T. J. Carmody, in section 22, of the Third Addition of the Taft Farm Lands.

Benavides Further Defined

The west side of the Benavides field, Duval County, was further defined with the abandonment of Humble Oil and Refining Co. No. 2 Moyer at 5,419 feet. Location is in section 8, Sweden Farm Lots. Along the same trend as this field, two more Cockfield tests were marked off the list and locations for three more Cockfield tests were made. Rowan and Hope No. 1 C. K. Garvis, section 90, was abandoned at 5,800 feet, while Mills Bennett and Stanolind Oil and Gas Co. No. 1-A Yates, was abandoned at 4,015 feet. North of San Diego in the El Paso Irrigation and Manufacturing Co. Survey 571, Circle Oil Co. spudded No. 1 Graham. In the J. Poitevent Survey, section 291, H. J. Porter is building derrick for No. 1 Fitzsimmons. Standard Oil Co. of Texas made location for No. 1 Dolores Garcia in the Cordente Heirs Survey. Five miles west of San Diego, Corpus Christi Refining Co. No. 1 Parr, C. Rios Survey No. 304, recovered 60 feet of oil and 180 feet of salt water on a drill stem test at 5,377-86 feet. The showing in the Cockfield section has attracted much attention and regardless of the outcome of the well, additional drilling in this area is anticipated.

In the Rio Grande Valley area, attention is centered on Gulf States Oil Co. No. 1 Josefa Cardenas, a deep wildcat in Hidalgo County which is preparing for a production test. The hole is bottomed at 8,002 feet and 5½-inch casing was cemented at 7,997 feet. A good sand section having an odor of oil and gas was cored from 7,992-8,000 feet, and the production test is to be made through perforated casing. The well is 6 miles west of the La Blanca field, in Share 156, San Salvador Del Tule Grant. In southern Willacy County, Magnolia Petroleum Co. No. 1 Armendaiz has resumed drilling from a total depth of 9,643 feet. In the northern part of the county, Sal Vieja Oil Corp. No. 2 Garcia Land and Cattle Co. was shutdown at 8,695 feet after running a Schlumberger survey.

Several shallow producing areas are being opened in the Laredo district. One and a half miles west of the Seven Sisters field, Duval County, V. G. Schimmel No. 5 Hagist, B.S.&F. Survey 265, was completed for 51 bbls. of fluid per day, of which 50 per cent was salt water. Sand was cored from 2,193-96 feet, the total depth, and 7-inch casing was cemented at 2,190 feet. It was put on the pump. South of Tilden in McMullen County, Alabama Minerals No. 3 Margaret Gordon, section 28, about 1½ miles northeast of the Loma Alta field, cored sand in the Hockleyensis formation at 2,276-90 feet and has been completed for an estimated 2 bbls. per hour, pumping.

In the same county in section 54, R. C. Lipscomb No. 1 Shiner ranch, cored oil sand at 1,365-70 feet and sand with an oil showing at 1,383-88 feet. On a 10-minute drill stem test it tested 45 feet of oily mud and casing was cemented for a production test after the hole was drilled to a total depth of 1,685 feet. Four miles west of Calliham, Heard, Hall and others No. 1 Byrne, G. Pittich Survey, flowed 1,000,000 cubic feet of dry gas through a 7/8-inch choke after completing in sand at 960-75 feet, the total depth.

Along the Balcones Fault line district, Paul Texas No. 1 McKnight, Dimmitt County, was preparing to plug back and test at 3,872 feet after it failed to show anything of importance on production tests at 7,040-73 feet and at 6,847-62 feet. The well was treated with 1,500 gallons of acid, but only a slight blow of gas and drilling mud was recovered.

Completed wells in proven Southwest Texas fields, with their total depth and initial 24-hour production of the producing wells were as follows:

Aransas County

McCampbell field: Morgan Oil Corp. No. 1 McCampbell, 7,249 feet, perforated casing 6,891-96 feet, 80 bbls., 1/8-inch choke. Shasta Oil Co. No. 2 Vaughn, 7,193-95 feet, 168 bbls. fluid, 10 per cent salt water, 7/8-inch choke.

Caldwell County

Dale field: Ralph Ogden No. 3 Barber, 2,450 feet, 42 bbls., pumping. Luling field: Philtop Oil & Gas Co. No. 7 Dorn, 2,094 feet, 106 bbls., 17 bbls. water, pumping. Philtop Oil & Gas Co. No. 4 Dorn, 2,115 feet, 60 bbls., pumping. Philtop Oil & Gas Co. No. 5 Dorn, 2,115 feet, 61 bbls., pumping. Philtop Oil & Gas Co. No. 6 Dorn, 2,106 feet, 60 bbls. oil, 19 bbls. water pumping.

Duval County

Benavides field: Benedum & Trees No. 13 Puig, 5,505 feet, 28 bbls., 8 hours, jetting with gas. Humble Oil & Refining Co. No. 3-B Rossi, 5,363 feet, 215 bbls., 1/4-inch choke. Navarro Oil Co. No. 1 Monemy 5,571 feet, abandoned. Standard Oil Co. of Kansas No. 8 Southland Life Insurance Co., 5,476 feet, plugged back 4,790 feet, 2 bbls. per hour, 7/8-inch choke. Hoffman field: Cox and Hamon No. 8 Green, sand 2,732-37 feet, 100 bbls., jetting with gas. Lundell field: Government Wells Oil Corp. No. 21 Lundell, sand 1,517-25 feet, 9 bbls. per hour, 1/4-inch choke. Magnolia Petroleum Co. No. 16 Duval County Ranch Co., sand 1,479-87 feet, 7 bbls. per hour, 1/2-inch choke. Piedra De Lumbre, sand 2,005-15 feet, 25 bbls. jetting with gas.

Guadalupe County

Darst Creek field: Trio Oil Co. No. 1 Tadlock, 2,633 feet, 4 bbls. oil, 1 bbl. water, pumping.

Jim Wells County

Alfred field: Heard & Heard No. 2 Adams, 3,367 feet, abandoned. Premont field: Diamond Half Oil Corp. No. 2 Laughlin, 3,212 feet, perforated casing 3,165-67 feet, 400,000 cubic feet gas.

Nueces County

Flour Bluff field: Sinclair-Prairie Oil Co. No. 2 State Land, 6,664 feet, perforated casing 6,632-61 feet, 140 bbls., 1/4-inch choke. Luby field: Seaboard Oil Co.

No. 17 Luby, 5,177 feet, plugged back 4,352 feet, 131 bbls., ½-inch choke. Seaboard Oil Corp. No. 6 Shaefer, 5,081 feet, abandoned. Saxet field: B. H. Hilburn No. 1-B Cody, 4,196 feet, 180 bbls. ⅞-inch choke. West Saxet field: C. Andrade No. 2 Dunn, 5,828 feet, 418 bbls. fluid, 60 per cent oil, balance salt water, ⅞-inch choke. Renwar Oil Co. No. 9 McKinzie, 5,809 feet, 330 bbls., ⅞-inch choke.

Refugio County

Refugio field: Houston Oil Co. No. 40 Rooke, 6,202 feet, 126 bbls., ½-inch choke. Tom O'Connor field: Quintana Oil Co. No. 26 O'Connor, 5,925 feet, 1,452 bbls., ⅝-inch choke. L. A. Nordan No. 9 B. O'Connor, 5,918 feet, 525 bbls. ¼-inch choke.

Live Oak County

Ezzell field: Wilson Oil Co. No. 1 Great Southern Life Insurance Co., 1,967 feet, abandoned.

San Patricio County

East White Point field: Plymouth Oil Co. No. 1 Nelson, sand 5,681-86 feet, perforated casing 5,683-85 feet, 6 bbls. per hour, ½-inch choke.

Webb County

O'Hern field: Kenyon Oil Co. No. 2 Benavides 3,505 feet, abandoned. Oilton field: M. E. Brooks No. 4 Uzzell, 2,028 feet, perforated casing 1,997-96 feet, 6 bbls. per hour, pumping. Daubert & Lipscomb No. 4 Garcia, 2,009 feet, perforated casing 1,967-73 feet, 90 bbls. ¼-inch choke. Daubert & Lipscomb No. 5-A

(Continued on Page 103)

Eastern Field Report

By STAFF CORRESPONDENT

Next Deep Test Will Start in Jackson County, W. Virginia

PITTSBURGH, Pa., Apr. 25.—A new deep test is starting in Jackson County, West Virginia, where the United Carbon Co. has a rig up and is hauling in tools for No. 3 Elizabeth Ward Perkins (Grange tract), in Washington district. Two previous tests on this farm to the north encountered a heavy head of salt water in the Oriskany sand. The new test is 750 feet north of the Kanawha County line northeast of Sissonville, and 5,100 feet north 9 degrees west of Pitmar Gas Co.'s gas well on the Albert Moore farm. A subsea Oriskany contour from the James Haynes well on the eastern flank of the pool in Poca district, Kanawha County, through the Linden Drilling Co.'s John B. Kidd fair test, and to the Joe Rubin gas well on the Lawrence Smith heirs on the west flank brings the new test well within production possibilities and will be of importance in determining the northward dip. The elevation is 945 feet.

SOUTHEAST OHIO

In Athens County, Ohio, section 30, Rome Township, B. Ankrom completed a 10-bbl. well on the B. R. Ellis farm in First Cow Run sand at 450 feet.

In Monroe County, H. B. Walker & Co. completed No. 3 on the Herman Rinard farm in section 5, Washington Township, in Injun sand at 1,390 feet. It produced 10 bbls. the first day after the shot.

In Washington County, E. A. Metcalf and others test on the A. J. King farm, section 22, Liberty Township, was completed in lime at 1,299 feet. It produced 8 bbls. the first 16 hours after the shot.

SOUTHWEST PENNSYLVANIA

In Springhill Township, Greene County, Pennsylvania, Taylor Oil & Gas Trust completed No. 5 John Taylor at 3,242 feet, a small well.

Washington County

In Donegal Township, Washington County, Joseph Heidlemier, Jr., is drilling on the J. M. McMurray farm. In Peters Township, R. M. Duden and others have reached 2,460 feet deepening No. 1 P. L. Parks.

In North Strabane Township, Beedle and Debone are drilling on the John Arblaster farm. The Keystone Drilling Co. is drilling at 1,215 feet in No. 2 J. C. Beabout with Salt sand at 1,137-1,212 feet and 450,000 feet of gas at 1,215 feet.

Deep Tests

On Chestnut Ridge in North Union Township, Fayette County, Wasson & Co., on the J. H. Sorg farm, lowered the 8⅝-inch casing to 1,932 feet, and is drilling at 2,050 feet.

In Wharton Township, on Chestnut Ridge, the Greensboro Gas Co. is drilling at 4,485 feet on the J. T. Thompson farm. In Springhill Township north of Wymps Gap, L. J. House-Convex Glass Co. is drilling at 900 feet on the Paul Dunham farm.

In Westmoreland County, the Peoples Natural Gas Co. has reached 3,200 feet in the rotary test on the John S. Marshall farm on the Grapeville anticline in Penn Township.

In Allegheny County, the South Penn Oil Co. and others are drilling at 1,300 feet in the rotary test on the Fred Backhaus farm, in Hampton Township. No difficulty was experienced drilling through the Injun sand.

WEST VIRGINIA

In Clay County, West Virginia, Virginian Gasoline & Oil Corp. completed No. 45 Brown, Swan, Goshorn and Geary in Henry district at 1,850 feet, in the Injun sand. It is showing for 12 bbls. a day.

In Tyler County, Cooper, Sutton and Pierce completed No. 32 F. R. Wells in Lincoln district, in the Injun sand at a depth of 1,421 feet, and it is showing for 10 bbls. a day.

Gas Wells

In Doddridge County, W. H. Ahner completed the test on the N. J. Cunningham farm in Central district with the top of the Big Injun sand at 2,000 feet, and 3,000,000 feet of gas a day at 2,003-07 feet. The rock pressure was 815 pounds.

In Boone County, Pond Fork Oil & Gas Co. completed the test on its fee in Washington district at 2,288 feet. It gauged 132,000 feet of gas a day from the Black Lime at 1,880-1,910 feet, 48 hours after shot.

In Gilmer County, the McCall Drilling Co. completed a test on the Fling farm in DeKalb district in Big Injun sand at 2,185 feet. It gauged 200,000 feet a day with a showing of one-half barrel of oil.

In Lincoln County, Templeton Gas Co. test on the J. T. Morrison farm in Sheridan district was completed at 2,283 feet. It gauged 94,000 feet a day, 72 hours after the shot.

In Ritchie County, F. R. Ball completed the second well on the John F. Jobes farm in Union district in Maxton sand at 1,770 feet and it is a gas well gauging 350,000 feet a day.

Oriskany Gas Field

The United Carbon Co. is drilling in on the William R. Young farm, and is down 4,035 feet on James S. Fisher farm, and fishing at 477 feet in the Louisa E. Long test.

In the same district, United Fuel Gas Co. is in Corniferous lime in No. 4771 on the B. A. Sisson land, and drilling at 4,823 feet in No. 4784, Oscar L. Gibson; drilling at 2,010 feet in No. 4790 W. H. Sisson. This company is hauling material to start No. 4769 L. E. Edens, No. 4787 W. J. Glass and others, No. 3794 B. B. Milam, and No. 4795 Nancy Carney and others.

Guy B. Ray is down 460 feet in the Emmett Thaxton test; Mullins Gas Co. is drilling at 500 feet on the Esta Fisher Bonham farm; Joe Rubin is at 1,780 feet on the Carney heirs test; the Liosag Fuel Co. shut down at 1,990 feet on the H. C. Matthews test; D. H. Stephenson & Co., casing at 2,040 feet in the Rozella Shamblin and others test; Columbian Carbon Co., drilling at 385 feet in the Boyd Castro test. In Union district, Columbian is drilling at 2,750 feet on the Nelson H. Cavender farm. West Virginia Gas Co. is fishing at 1,827 feet on the J. E. Layne and others land with the casing collapsed.

In Elk district, Columbian Carbon Co. is drilling at 1,380 feet in the B. F. Jones test and at 3,747 feet in the Margaret Rayhill test. Cameron Oil & Gas Co. has reached 3,200 feet on the Henry Hansel farm.

New Work and Other Operations

In Boone County, Pure Oil Co. has material on the ground for No. 42 Lafolette, Prichard and Robson, and is down 2,260 feet in No. 284 Williams Coal Co., and at 689 feet in No. 285. All are in Sherman district.

In Calhoun County, F. F. McIntosh is drilling at 850 feet in No. 1 R. M. Marshall, Lee district. In Washington district, O. D. Jones is fishing for bailer lost at 1,250 feet. In Sherman district, Garrett and Garrett are down 1,160 feet in No. 2 Fogel and Wilson. A. R. Stump and others are testing at 1,926 feet in No. 2 Clayton Stump.

In Doddridge County, Henderson Gas Co. is testing at 2,096 feet on the Alex Liggett farm in Central district. In Lewis County, Hope Natural Gas Co. has reached 4,292 feet in No. 7790 Amanda Summers, in Skin Creek district.

In Gilmer County, W. H. Petry is drilling at 1,218 feet in the T. A. Reed test; E. L. Bush at 1,600 feet in No. 2 Young and others. Pittsburgh & West Virginia Gas Co. is drilling at 2,100 feet in No. 7649 H. L. Simmons. All are in Glenville district. In Center district, H. B. Scott is rigging up the Worthy-Moore test. In DeKalb district, Hope Natural Gas Co. is at 205 feet in No. 7808 C. O. Rafferty. Paul K. Weekley has started drilling the George C. Ellyson test.

In Jackson County, the Cunningham Gas Co. is drilling at 710 feet on the E. F. Cunningham land in Ripley district. In Washington district, C. F. Goble Oil Co. reached 500 feet in and shut down the Boyd E. Warne test.

In Kanawha County, Pure Oil Co. was drilling at 252 feet in No. 283 Williams Coal Co., in Cabin Creek district. In Nicholas County, Hope Natural Gas Co. is down 1,900 feet in No. 7795 Federal Coal Co.

In Lincoln County, Sand Creek Oil Co. has started drilling the J. L. Caldwell test, in Harts Creek district.

In Logan County, the Southeastern Gas Co. has started drilling the second test on the John A. Covery heirs land in Logan district.

In Monongalia County, Pittsburgh & West Virginia Gas Co. is drilling at 2,132 feet in No. 5411 Della Lemley, and Philadelphia Oil Co. is down 1,073 feet in No. 5410 Stephen Tennant, both in Clay district.

In Roane County, O. H. Reed and others have spudded in on the P. V. Litton farm in Harper district. R. W. Heasley is down 2,242 feet in No. 1 Marion Hay. In Geary district, the United Fuel Gas Co. is ready to spud No. 4798 Samuel W. Vineyard.

In Tyler County, Rae Oil Co. is down 300 feet in No. 2 Ralph Brooks in Union district, and E. C. Hartman has rigged up the Hannah Martin test.

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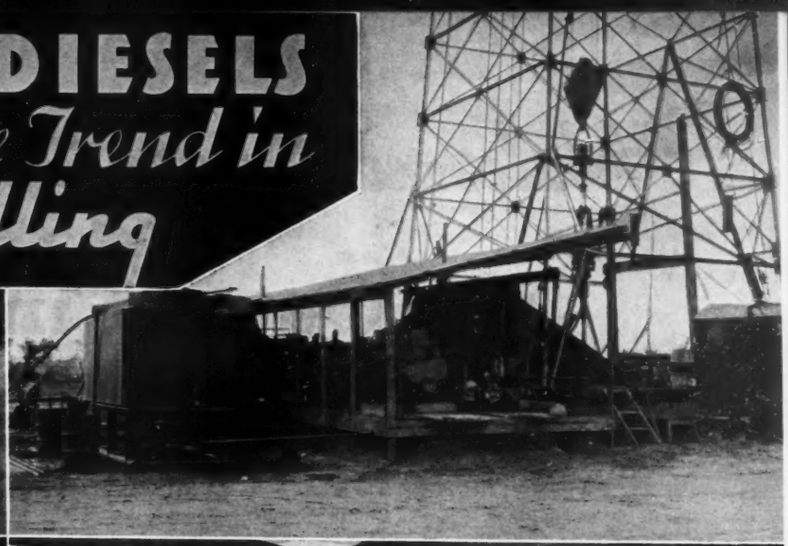
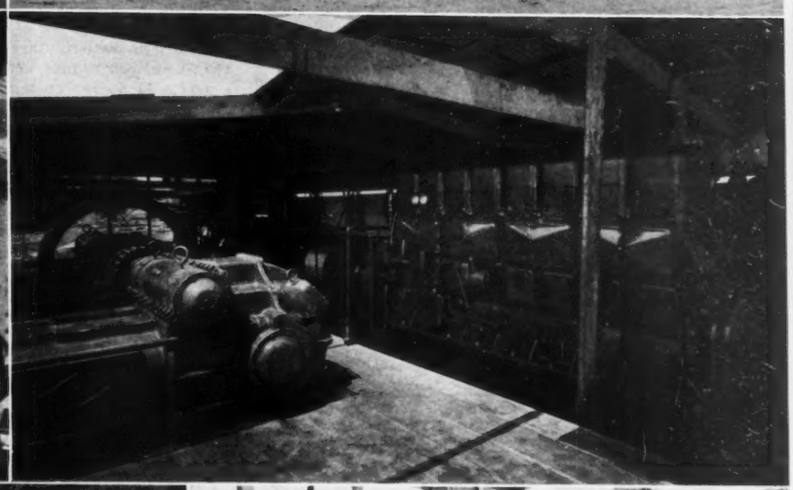
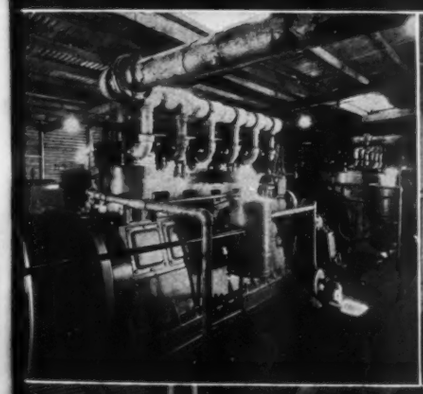
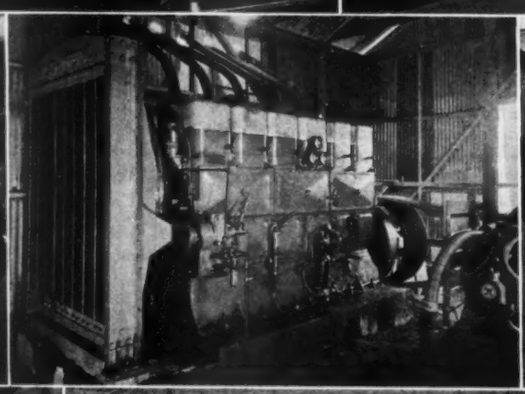
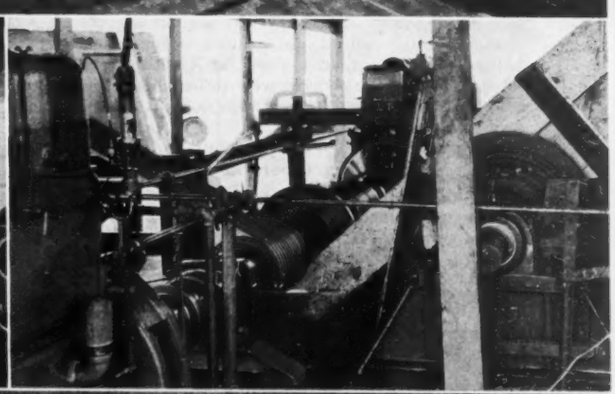
Point the Trend in Drilling

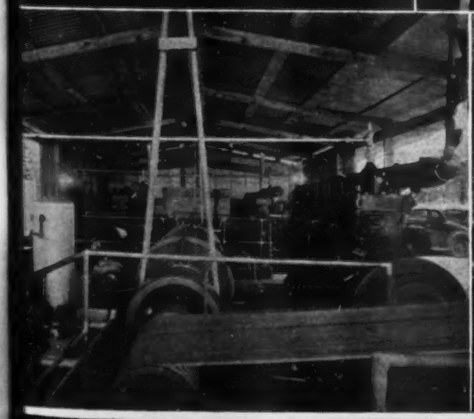


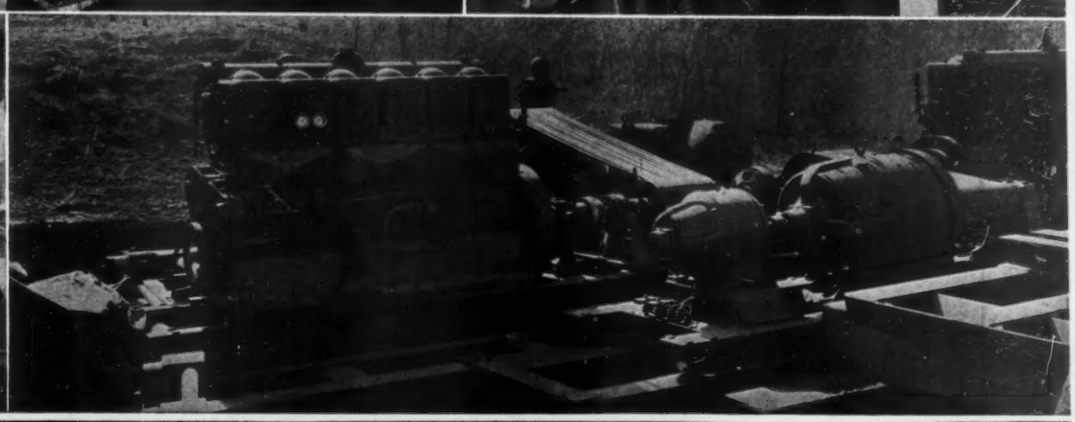












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ATLAS IMPERIAL

Oklahoma Operations

By
DAL DALRYMPLE

Outpost in Ramsey Area Has Oil Showing in Wilcox Sand

The Ramsey pool in Payne County continues to provide the major interest in Oklahoma field news, with another big producer recorded the past week and locations for three new tests announced. An outpost was showing as a possible Wilcox sand producer.

Mid-Continent Petroleum Corp. and others No. 2 Ramsey, NW SW NW section 18-18-2e, north offset to the discovery well and sixth producer for the pool, flowed 655 bbls. of oil the first hour and 615 bbls. the second hour and was shut in. Gas was estimated at 8,000,000 feet. The No. 2 Columbia Wetzel, fifth producer in the pool, had been completed a few days previously.

The new tests are: Mid-Continent Petroleum Corp. and others No. 3 Ramsey, SE SW NW section 18-18-2e, east offset to the discovery well; same operators' No. 3 Columbia Wetzel, NW NE SW section 18-18-2e, east offset to No. 2 Columbia Wetzel and 660 feet east of present producing limits of the pool; and same operators' No. 2 Brandon, NE SE NE section 13-18-1e, west offset to No. 2 Ramsey.

Possibility of extension of the pool to the north was improved with a showing at Sun Oil Co. and Loffland Brothers Drilling Co. No. 1 Scafe, SE SE NE section 12-18-1e, 1 mile north of production. Although it had been running low on structure in comparison with the producers to the south, it was reported to have found saturation in Wilcox sand topped at 4,959 feet and cored to 4,962 feet. Operators were coring ahead. The sand was found about 197 feet lower than in the discovery well.

Wildcat Operations

Gulf Oil Corp. No. 1 Thomas, SW NW NW section 14-4n-5w, the deepest test yet drilled in Oklahoma, was dry and abandoned at 11,415 feet, total depth, in shale, with drill pipe stuck in the hole. Location for this test in southeastern Grady County was announced May 25, 1937, and work started soon thereafter. A special article in The Oil and Gas Journal of April 21, 1938, gave detailed information regarding this wildcat.

B. C. D. Edwards No. 1 Clark, NE corner section 16-3n-3e, was completed as a small producer to open a new area in eastern Garvin County. On completion test, it pumped 15 bbls. of oil and an equal amount of water in 24 hours. Casing was perforated at 1,882-86 feet and 1,900-10½ feet. The hole was bottomed at 2,676 feet, plugged back and drilled out to 1,913 feet. Pontotoc and Vanoss formations were found at 1,903-13 feet.

The second discovery of the week was completed at Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 Preame, NW NW SE section 29-9-9, north of the Adams area in northwestern Hughes County. It flowed 138 bbls. of oil and 20 bbls. of salt water in 24 hours, and on completion test flowed 64 bbls. of oil and 13 bbls. of water, with 12,000,000 feet of gas. It was bottomed at 4,268 feet, plugged back to 3,354 feet, and was producing from Wapanucka-Cromwell series at 3,328-54 feet.

J. R. Pierse No. 1 Hannon, SE corner section 26-28-2e, Kay County wildcat, was reported abandoned at 1,670 feet, total depth.

Six new wildcats were reported the past week.

H. H. Heydrick No. 1 Paschall, NE SE NW section 22-13-19, a Wilcox sand test east of Keefeton in Muskogee County, was drilling below 680 feet.

O. K. Jackson No. 1-A Smith, SW NE NE section 23-16-15, north of Haskell in Muskogee County, was drilling below 150 feet.

Carter Oil Co. and associates No. 1 Wood, C E half SE SE section 13-2n-8, northwest of the Centrahoma area, Coal County, was a location.

J. G. Smith and others No. 1 Cully, SW SW NW section 34-7-5, in Seminole County, between the Dora and St. Louis districts, had dug pits.

Villines and others No. 1 Reed, NE corner section 35-7-5, also west of the Dora pool in Seminole County, had dug cellar and pits.

E. Fletcher No. 1 Wahl, NW corner section 1-19-2[illegible]w, had machine on ground for a 1,900-foot t[illegible] northwest of Arnett, in Ellis County.

Payne County

Mid-Continent Petroleum Corp. and others No. 2 Columbia Wetzel, NE NW SW section 18-18-2e, fifth well to be completed as a producer in the Ramsey pool, Payne County, flowed 1,645 bbls. of oil in 3 hours and had estimated potential of 12,000 bbls. daily. Gas was estimated at 8,000,000 feet. Wilcox sand was topped at 4,745 feet, total depth 4,780 feet.

J. E. Crosbie, Inc., No. 1 Fruin, SE SE NW section 13-18-1e, one-half mile west of Ramsey production, ran low on structure and was dry and abandoned at 5,035 feet, total depth. It found Wilcox sand at 5,013 feet.

Estimated Daily Production

Estimated daily production for Oklahoma for the week ending April 23 and for the preceding week was as follows:

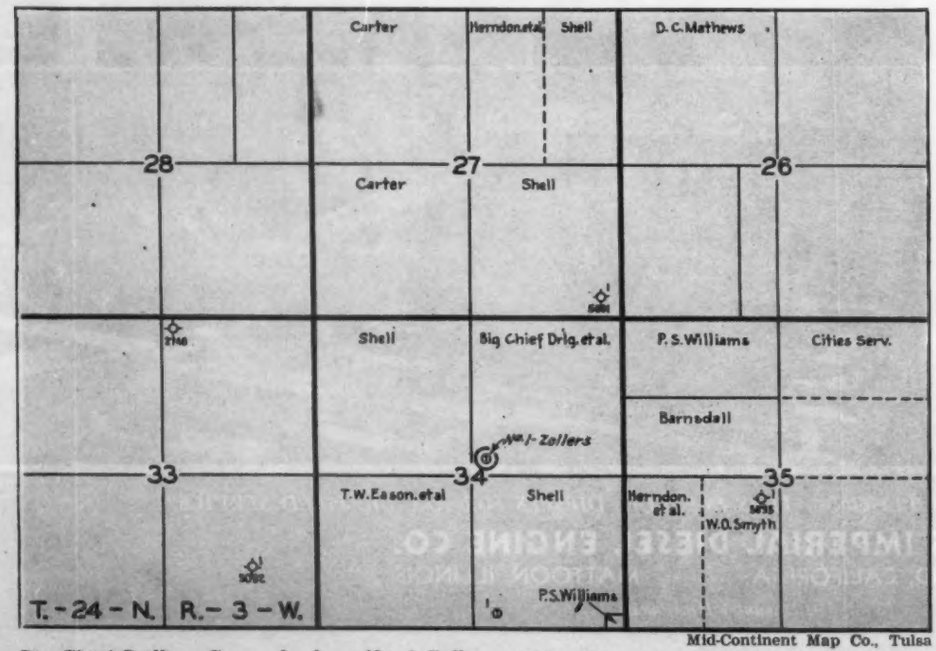
	Barrels	
	Apr. 23	Apr. 16
Allen	5,550	5,475
Billings	7,200	7,325
Burbank	7,350	7,325
South Burbank	10,500	10,750
Balance Osage	18,700	18,750
Blackwell district	4,525	4,650
Bristow-Slick	6,925	6,975
Chandler	2,325	2,350
Crescent	6,400	6,825
Cromwell	3,050	3,075
Cushing-Shamrock	10,700	10,725
Duncan district	3,700	3,725
Edmond	6,925	6,875
Fish	3,625	3,775
Fitts	55,050	53,975
Jesse	3,175	3,450
Graham	4,250	4,300
Gray	1,075	1,050
Healdton	8,700	8,600
Hewitt	3,500	3,475
Keokuk	5,450	6,400
Konawa	1,375	1,525
Lucien	11,775	12,100
Moore	6,600	7,150
Oklahoma City	123,475	178,200
Olympic	6,700	6,750
Ramsey	1,025	825
Sasakwa	1,750	1,750
Sholem-Alechem	2,950	2,925
Seminole district:		
Bowlegs	9,575	10,300
Carr City	3,800	4,025
Dora	5,725	5,750
Earlsboro	5,200	5,350
South Earlsboro	575	625
East Earlsboro	5,550	5,375
Little River	8,175	8,300
East Little River	825	900
Maud	775	725
Mission	1,700	1,750
Seminole	8,275	6,775
East Seminole	1,900	1,825
Searight	3,325	3,500
Total Seminole	55,400	55,200
St. Louis-Pearson	20,050	19,775
Tatums	3,725	3,750
Tonkawa-Garber-Thomas	4,225	4,250
Wewoka	2,450	2,450
Yale-Jennings	3,750	3,725
Other pools	75,500	77,500
Total Oklahoma	499,425	497,725

Seminole County

Three producers were completed in the Dora pool, Seminole County. Winkler & McQueen No. 2 Bruner, SW NW NE section 4-6-6, had lime at 2,437 feet, total depth 2,837 feet, and flowed 300 bbls. of oil through casing in 24 hours. It was shot at 2,784-2,837 feet, and flowed 1,380 bbls. of oil in 20 hours.

J. F. Smith No. 3 Austin, NE NE SE section 32-7-6, had Boggy sand at 2,909 feet and was bottomed at 2,961 feet. It flowed 200 bbls. of oil in 24 hours before shot at 2,909-60 feet, and flowed 510 bbls. of oil in 24 hours after shot.

Malarnee & Shelton No. 5 Shelton, NW SW NW section 33-7-6, found Boggy sand at 2,906-28 feet, total depth 3,003 feet, was shot and flowed 200 bbls. of 37-gravity oil in 24 hours.



Mid-Continent Map Co., Tulsa

Big Chief Drilling Co. and others No. 1 Zollars, wildcat in section 34-24-3w, Garfield County, was drilling ahead

J. F. Smith and others No. 1 England, SE SE NW section 15-7-6, was dry and abandoned at 3,586 feet, total depth.

Wood Oil Co. No. 1 Cudjo, NE SE NE section 2-8-6, Seminole pool, had Wilcox sand at 4,120-37 feet, total depth, was shot and swabbed 373 bbls. of oil in 15 hours, and on last gauge pumped 554 bbls. in 21½ hours.

W. C. McBride and others No. 2 Boy Scouts, NE SE SE section 7-9-7, Seminole pool, had Cromwell sand at 3,497-3,510 feet, total depth 3,513 feet, was shot and pumped 168 bbls. of oil in 24 hours. Gravity of the oil was 38 degrees.

Carter Oil Co. and others No. 2 McKinnis, C W half SE SW section 18-10-6, an old well, was dry and abandoned after deepening from 4,596 feet to 4,662 feet and plugging back to 4,430 feet.

New work in Seminole County: Westheimer & Neustadt No. 4 Factor, SE SE SW section 25-5-7, location; Texas Co. No. 1 Westbrook, SW SE NW section 34-6-5, location; Malarnee & Shelton No. 1 Jorden, NW NE SW section 29-7-6, location; J. F. Smith No. 3 Harryman C, SE SW SE section 33-7-6, spudded; same operator's No. 4 Harryman B, NE SE SW section 33-7-6, drilling below 180 feet; W. C. McBride, Inc. No. 1 Whitney, SE NE SE section 7-9-7, cellar; J. D. Campbell, SW SE SW section 8-9-7, location.

Pontotoc County

H. L. Blackstock No. 3-A Craddock, NW NE SE section 25-2n-6, Fitts district, Pontotoc County, found Cromwell sand at 2,527-80 feet, total depth 2,616 feet, was shot and flowed 100 bbls. of oil in 24 hours.

F. W. Merrick No. 4 Balthrop, NE NE SE section 10-4-6, Ada district, had Pontotoc formation at 765-767 feet, total depth, and pumped 10 bbls. of oil in 24 hours.

Keystate Oil Co. No. 1 Burke, SW NW SE section 32-5-5, Beebe pool, pumped 25 bbls. of oil in 24 hours and was completed at 1,893 feet, total depth.

Benedum & Trees No. 6 Malloy, SW SE SW section 30-5-5, was bottomed at 2,646 feet, plugged back to 2,629 feet, pumped 21 bbls. of oil in 24 hours and was completed as a 6-bbl. pumper.

W. A. Delaney and others No. 4 Shipley, NE NW NE SW section 21-5-8, Allen pool, had Gilcrease sand at 2,148-70 feet, total depth, was shot and swabbed 40 bbls. of 32.6-gravity oil in 24 hours.

Mexhoma Oil Co. No. 6 Butler, NW SW SW section 21-5-8, had second Allen sand at 1,086-87 feet, total depth, and had gas production estimated at 3,000,000 to 4,000,000 feet.

Clark & Cowden No. 1-A Starrett, SW NE NE section 21-5-5, was drilling below 1,240 feet. W. A. Delaney and others No. 1 Butler, SW SE NW section 21-5-8, was moving in machine.

W. A. Delaney and others No. 1 Wheeler, SW NW SW section 30-5-8, an old Allen well, was plugged back from 2,515 feet to 1,257 feet, the hole filled with water and it was abandoned.

Oklahoma County

Stahl Petroleum Co. No. 1 Kenwood, NE SW SW section 15-12-3w, Oklahoma City field, Oklahoma County, had Dolomite pay at 6,385 feet, total depth 6,485 feet, perforated casing and pumped 205 bbls. of oil in 24 hours.

Big Chief Drilling Co. No. 1 Reed, NW NE NE section 35-12-3w, found Hammer Handle sand at 6,210 feet, total depth 6,427 feet, and produced 4,200,000 feet of gas daily.

Gulf Production Corp. of Oklahoma No. 8 Schuster, NW SW SW section 15-12-3w, was a cellar.

Pottawatomie County

Three wells were completed in the St. Louis district, Pottawatomie County. Cooper No. 1 Green, NE SE NE section 35-7-4, had Simpson sand at 4,100-07 feet, total depth 4,143 feet, was acidized and pumped 195 bbls. of oil and 75 bbls. of water in the first 24 hours. Gravity of the oil was 39 degrees.

Vivian Oil Co. No. 2 Le Clair, NE NW NE section 23-7-4, had Calvin sand at 3,143-50 feet, total depth, and swabbed 190 bbls. of oil in 7 hours.

Denver Producing & Refining Co. No. 1-A Davidson, SW SW NW NE section 22-7-4, found Calvin sand at 3,191-3,201 feet, total depth, plugged back to 3,197 feet, and swabbed 80 bbls. of oil and 90 bbls. of water in 24 hours.

New work in Pottawatomie County: Lain Oil Corp. No. 1 Castleberry, NE NE SW section 36-6-4, pits; J. P. Smith No. 1-A Crane, NE SW NE section 12-7-4, location; Magnolia Petroleum Co. No. 8 Banta, NW NE SE section 14-7-4, rig; J. F. Smith No. 4 Hines, NE SE NE section 21-7-4, cellar and pits; Magnolia Petroleum Co. No. 3 Lynn, SE NE NE section 21-7-4, location; same company's No. 4 Hilton, SW NW NW section 22-7-4, rig; Denver Producing & Refining Co. No. 1-A Martin, SW SE NW section 19-7-5, drilling at 1,325 feet.

Osage County

Barnsdall Oil Co. No. 3 Osage, NW SW SE section 23-24-10, Osage County, had Bartlesville pay at 1,833-41 feet, total depth 1,851 feet, and pumped and flowed 177 bbls. of oil in 24 hours.

Sinclair Prairie Oil Co. No. 7 Osage, NE SE NE section 21-25-6, swabbed 60 bbls. of oil in 24 hours and was completed at 2,731 feet, total depth, in sand.

M. L. Brenner No. 3 Osage, NE SE NW section 1-22-9, was a location.

Lincoln County

Buell & Herndon No. 1 Fouquet, C W half SE section 9-13-6, Lafoon pool, Lincoln County, found Hunton lime at 4,100-02 feet, total depth, and produced 1,932,000 feet of gas, with rock pressure of 1,422 feet.

Sinclair Prairie Oil Co. No. 1 Rigney, SW corner section 3-13-6, was moving in tools.

Okfuskee County

Mid-Continent Petroleum Corp. No. 2 Irelan, NW NE SW section 10-13-10, in the new Okfuskee County pool, found Wilcox sand at 3,397-3,412 feet, total depth, was shot and swabbed and flowed 90 bbls. of oil in 24 hours.

Okmulgee County

Bruce Martin and others No. 4 McHenry, NE SE NW section 16-14-11, Okmulgee County, found Dutcher sand and at 2,409-47 feet, total depth, was shot and pumped 10 bbls. of oil daily.

C. R. Colpitt No. 9 Buchanan, SW NE SE section 31-15-14, was completed as an 8-bbl. pumper at 1,715 feet, total depth.

Ed Smith No. 3 Keston, SE NE NE section 1-14-12, was a location.

Jordon, Ring & Martin No. 1 Fields, NE NW NW

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section 16-14-11, found Dutcher sand at 2,443-53 feet, total depth 2,456 feet, and pumped 7 bbls. of oil daily.

Wagoner County

A. Pepis No. 1-A Corder, NW NW NE section 17-16-15, Wagoner County, was dry and abandoned at 1,277 feet, total depth.

Muskogee County

Conrad Lambert No. 2 McKay, SW SE SW section 31-16-15, an old Muskogee County well, was deepened from 1,302 feet to 1,662 feet, and was to run 6-inch pipe.

Logan County

Mid-Continent Petroleum Corp. No. 3 Bulling, NW NE NE section 5-19-2w, Lucien area, Logan County, an old well, was deepened from 5,107 feet to 5,863 feet, set 7-inch casing and was waiting.

Carter County

Barrett & Rader No. 14 Hinkle, NE SE NW section 20-3s-2w, Wheeler pool, Carter County, was completed as a 3-bbl. pumper at 342 feet, total depth.

Four other wells completed by the same operators were as follows: No. 15 Hinkle, NW SE SE NW section 20, pumped 2 bbls. of oil at 230 feet; No. 16 Hinkle, SE SE SE NW section 20, pumped 1½ bbls. of oil at 334 feet; No. 17 Hinkle, NE SE SE NW section 20, pumped 5 bbls. of oil at 243 feet; No. 18 Hinkle, NW SW NE NW section 20, pumped 3 bbls. of oil at 208 feet.

S. & D. Daube No. 30 fee, SW SW SE section 14-4s-3w, an old well, pumped 8½ bbls. of oil daily after deepening from 1,307 feet to 1,364 feet.

K. O. T. Oil Co. No. 6 Westheimer B, NE NW NW section 36-4s-2w, was an abandoned location.

C. B. Evans No. 6 Ratliff, C W half NW SW section 28-1s-2w, was a location in the Tatums area.

Caddo County

Ohio Oil Co. No. 3 Lemon, Account 1, NW SE SE section 2-5-9w, Cement field, Caddo County, found gas sand at 4,070-4,223 feet, total depth 4,380 feet, perforated casing and produced 12,300,000 feet of gas.

Magnolia Petroleum Co. No. 8 Hedlund, NE NW NE section 11-5-9w, an old Cement well, was deepened from 5,404 feet to 5,757 feet, and produced 39,400,000 feet of gas daily from pay at 5,754-57 feet.

Stephens County

W. J. McAllister No. 2 Carpenter, SW SW NE section 11-2s-8w, Duncan pool, Stephens County, was completed as a 20-bbl. pumper at 2,068 feet.

Duncan Petroleum Co. No. 1-B Gilmore, SE SE NE section 10-2s-5w, was bottomed at 863 feet and pumped 2½ bbls. of oil daily.

New work in Stephens County: Magnolia Petroleum Co. No. 9 Funk, SW NW SE NW section 30-1n-8w, an old well, rigging up machine to deepen; Carl Carter No. 1-A Warden, SW NW NE section 34-1s-5w, drilling below 804 feet; L. A. Wilkins and others No. 12 Crump, NE NE NE section 15-2s-5w, waiting on cement to set at 20 feet.

Comanche County

Guy Anderson No. 3 Price, SW NE NE section 30-2n-9w, an old well in the Hanbury pool, Comanche County, was deepened from 2,030 feet to 2,090 feet, and pumped 35 bbls. of 36-gravity oil.

Frederick & Heidt No. 1-A Frazee, SE NW SE section 29-2n-10w, Lawton area, produced 1 bbl. of oil and 1,000,000 feet of gas at 474 feet, total depth.

Theimer and others No. 26 Brokaw, SW SW NW section 30-2n-10w, missed shallow sands and was dry and abandoned at 260 feet.

Jackson County

Gulf Oil Corp. No. 1 O'Neel, NW NW SW section 5-1s-19w, an old well in the Tipton area, Jackson County, was plugged back from 2,635 feet to 2,581 feet., perforated casing, produced 73 bbls. of oil daily and was recompleted.

Same company's No. 1 Bager, SW SW NW section 5-1s-19w, was plugged back from 2,619 feet to 2,590 feet, perforated casing and pumped 46 bbls of oil in 24 hours.

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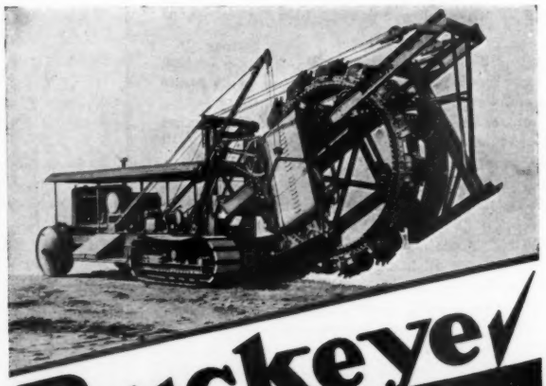

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California Field Report

By L. P. STOCKMAN

Group of Operators Lead in Cutting Wilmington Output

LOS ANGELES, Calif., Apr. 25.—Several operators in the Wilmington field have decided to restrict daily production of wells to a maximum of 800 bbls. in place of the existing 1,000 bbls. maximum. As a result production of the field has been brought under 100,000 bbls. per day. Elimination of the open-flow test has been an important factor in stabilizing field production but there is still too much oil coming out of the area.

Hancock Oil Co. No. 9-B was completed flowing 3,000 bbls. per day and same company's No. 8-F finished flowing 3,527 bbls. daily. The former was bottomed at 4,084 feet and brought in flowing through a 48/64-inch bean from the Ranger zone and a 1-inch bean from the Terminal zone. Perforations are at 2,516-2,950 feet opposite the Ranger zone and at 3,250-4,084 feet opposite the Terminal zone with the cement point through perforations at 3,250 feet. No. 8-F was bottomed at 4,014 feet and like No. 9-B was completed flowing from both the Ranger and Terminal zones. The Ranger is flowing through a 34/64-inch bean while the Terminal zone is flowing through a 1-inch bean. The 50-mesh perforations used are at 2,333-2,780 feet and at 2,850-4,014 feet with the cement point through perforations at 2,850 feet.

Union Pacific Railroad Co. No. 83 was completed flowing 3,820 bbls. of clean 25.8-gravity oil per day from 3,933 feet. It was finished with 527 feet of 6⅝-inch liner carrying 60-mesh perforations at 3,445-3,515 feet, 3,525-3,622 feet, 2,642-3,733 feet and 3,758-3,900 feet and was cemented through perforations at 3,443 feet. Above the 6⅝-inch liner the company landed 1,015 feet of 8⅝-inch oil string carrying perforations at 2,429-2,653 feet, 2,941-3,047 feet, 3,062-3,282 feet and at 3,292-3,397 feet. Production of this well is coming from both the Ranger and Terminal zones, gravity of the former testing 20.1 degrees and the latter 25.7 degrees.

General Petroleum Corp. completed a small flowing well in the Ranger zone at 2,941 feet when No. 3 Harbor was completed flowing 416 bbls. of exceptionally clean 16.1-gravity oil per day. It was finished with 560 feet of 5¾-inch liner including 395 feet of perforated and before being completed was packed with gravel, which has proved beneficial in the Wilmington field.

Superior Oil Co. has temporarily hung up tools in the field but may reenter the area in another month or two. Drilling obligations in the Rio Bravo field will require the use of the company's entire drilling crews. Superior Oil Co. completed No. 4-B Seaside in the Wilmington field, flowing 417 bbls. of 16.6-gravity oil per day from the Ranger zone through a 22/64-inch bean. This new well was finished with 433 feet of 8⅝-inch liner carrying 80-mesh perforations at 2,515-2,817 feet and 2,838-2,919 feet and 2,700 feet of 2½-inch tubing with packer at 2,510 feet.

Rio Bravo

In the Rio Bravo field, [illegible]r Oil Co. completed two new wells and both register[illegible]mercial production. Operators refrain from making potential production tests, and the initials of all wells completed up to the present do not represent maximum production. This agreement includes a curtailment of production with the allowable averaging around 500 bbls. per well each day. Superior Oil Co. No. 1 Ruhl was brought in flowing 1,640 bbls. of clean 37.4-gravity oil per day from 11,512 feet. This well, which topped the pay at about 11,405 feet, was finished flowing through a 16/64-inch bean and also produced 475,000 feet of gas. Union and Superior are jointly building a natural gasoline plant to process their own gas but will probably also take anticipated production of General Petroleum Corp. and George F. Getty. Superior's other completion, No. 2 Wagner, was completed flowing 1,260 bbls. of clean 37.4-gravity oil and 500,000 feet of gas per day from 11,449 feet. It logged top of the oil sand at 11,304 feet. No. 1 Ruhl extended the productive limits of the field about 3,000 feet and indicated that the top of the structure is located near Union Oil Co.'s discovery well. Superior Oil Co. has staked location for No. 2 Geissinger in section 35-38-25 and expects to have rig material on the ground this week.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	April 15		April 8			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Crude oil	.....	.....	.....	.....	70,180	.....
Diesel and gas oil	.....	.....	.....	.....	.....	176,726
Gasoline	.....	.....	331,171	47,310	870,595	687,553
Kerosene	.....	.....	.....	.....	132,575	.....
Foreign exports—						
Crude oil	563,127	80,447	143,550	20,507	6,794,613	3,712,774
Fuel oil	158,080	22,583	97,528	13,933	2,237,321	3,881,675
Diesel and gas oil	79,522	11,360	12,280	1,754	1,297,234	1,936,753
Gasoline	175,595	25,085	152,229	21,747	1,790,215	2,363,551
Kerosene	.....	.....	.....	.....	311,062	879,407
Other unfinished oil	.....	.....	.....	.....	.....	179,265
Coastwise-domestic—						
Crude oil	64,918	9,274	491,397	70,200	3,608,100	1,719,828
Fuel oil	267,337	38,191	352,155	50,308	3,517,008	4,262,910
Diesel and gas oil	52,311	7,473	23,520	3,360	470,468	739,114
Gasoline	213,194	30,456	522,905	74,701	4,330,509	3,550,728
Kerosene	18,389	2,627	18,092	2,585	101,585	51,840

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercostal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	178,662	152,932
Gasoline	.....	.....	.....	.....	9,499	25,778
Lubricants	.....	.....	.....	.....	76,458	.....
Foreign exports—						
Crude oil	509,546	72,792	.....	.....	1,575,030	907,349
Fuel oil	73,006	10,429	18,920	2,703	592,683	469,000
Diesel and gas oil	62,495	8,928	.....	.....	492,743	898,007
Gasoline	195,577	27,940	.....	.....	1,427,162	1,574,536
Kerosene	80,019	11,431	.....	.....	213,346	252,035
Lubricants	.....	.....	.....	.....	145,340	234,631
Coastwise-domestic—						
Fuel oil	142,826	20,404	181,929	25,990	1,931,384	1,848,729
Diesel and gas oil	37,144	5,306	49,623	7,089	509,155	197,308
Gasoline	94,368	13,481	120,412	17,202	1,811,712	1,226,050
Kerosene	.....	.....	30,316	4,331	235,760	41,340

Montebello

St. Helens Petroleum Co. completed an excellent well in the west end of the Montebello field when No. 24 Monterey was brought in flowing 4,210 bbls. of 34.8-gravity oil and 3,175,000 feet of gas per day from 5,781 feet, flowing through two 1½-inch beans. It was permitted to flow several days before being beaned back. Production was still cutting 4 per cent when the well was beaned back but the output may clean up in a few days. Production is coming from between the lower Pliocene and upper Miocene and therefore the completion of No. 24 Monterey proves up the existence of commercial production at high points on the structure.

Torrance

In the Torrance field, No. 3 Moore of McDonald & Burns showed an initial production of 590 bbls. of clean 26.4-gravity oil per day. This is the first large flowing well in the Torrance field since deep zone development got under way late last year. It is twice the average of the past completions and will lead to additional development close to the well. No. 3 Moore was completed flowing through a 34/64-inch bean and shows a tubing pressure of 155 pounds and a casing pressure of 100 pounds. This well bottomed at 5,039 feet.

Peso Oil Co. No. 1 Torrance was brought in pumping 320 bbls. of 26.5-gravity oil, cutting 4 per cent, from 5,013 feet. It was finished with 1,590 feet of 5-inch liner including 120 feet of perforated landed on bottom and was cemented through perforations at 4,890 feet. F. C. Kelly No. 1 Huyck was completed pumping 240 bbls. of 26.4-gravity oil daily from 4,999 feet after the hole had been finished with a 4¾-inch oil string carrying 97 feet of perforated. Chanslor Canfield Midway Oil Co., discoverer of the Torrance field, recompleted No. 14 Torrance pumping 184 bbls. of 26.8-gravity oil against a 20/64-inch bean and shows a tubing pressure of 350 pounds and a casing pressure of 165 pounds. No. 14 Torrance was bottomed at 5,018 feet and finished with a combination 8⅝-inch and 6⅝-inch string with the latter on bottom. The pipe was blank and after cementing on bottom the crew went back into the hole and perforated at preselected points. No. 2 Weiller of Sierra Development Co. has been completed pumping 178 bbls. of 26.6-gravity oil daily from 5,017 feet.

Rosecrans

The Rosecrans area is getting hotter due to extensive leasing west of the productive area by Standard Oil Co. and south of production by Richfield Oil Co. Both of these operators are of the opinion that production has been split by the main Rosecrans fault and have tied up everything available. Recent completions have greatly stimulated interest in the Rosecrans field as the extent of the deep Miocene zone discovered last year by Barnsdall Oil Co. is not yet definitely established. Acreage has jumped from $15 per acre per month to $500 for a lease for six months. Standard Oil Co. and the Texas Co. holding acreage south of the new area are expected to begin wildcat operations within 90 days. During the current week Barnsdall Oil Co. completed No. 20 O'Dea in the Rosecrans field flowing 1,145 bbls. of clean 33.4-gravity oil and 780,000 feet of gas per day from the deep Miocene zone at 7,835 feet. This new well was finished with 579 feet of 5¾-inch liner including 488 feet of 100-mesh landed at 7,833 feet and 7,727 feet of 2½-inch tubing. The Trust lease which has been developed by four operators at different times took a new lease on life a few weeks ago when Universal Consolidated Oil Co. completed its first well flowing 1,500 bbls. per day of clean pipe line oil. Barnsdall Oil Co., which retained a small portion of the property when quit-claiming it back to the trustee, has two locations for deep zone wells.

Potrero

In the Potrero field, Tide Water Associated Oil Co. recompleted No. 4 Cypress flowing 457 bbls. of 47.9-gravity oil per day after plugging the hole back to 3,750 feet. This well, which is making around 500,000 feet of gas, was returned to production flowing through a 48/64-inch bean. Basin Oil Co. has reached

(Continued on Page 102)

Kansas Developments

By
DAL DALRYMPLE

Compact Group to Wichita; East Extension for Aldrich

Two important meetings scheduled for Wichita the latter part of this week overshadowed interest in Kansas field operations, although four wildcats were completed as pool openers and several extensions of producing areas were imminent.

The quarterly conference of the Interstate Oil Compact Commission will be held in Wichita Friday and Saturday. Representatives of Kansas oil producers were expected to make a strong plea to the compact commission for an increase in its allotment of the crude oil market. The commission was expected to consider a curb on unnecessary drilling, holding of supply to demand and other matters pertinent to the industry.

Speakers at the conference were to include Joseph H. Pogue and Alex Sachs of New York; Dr. R. A. Steinmayer, Tulane University, New Orleans, and Dr. F. B. Plummer, University of Texas.

Meetings of the executive committee and two other committees of the Independent Petroleum Association of America were to be held Thursday, preceding the compact conference.

The Kansas Corporation Commission also was due to hold a hearing Thursday to determine allowable production for May. The Bureau of Mines has estimated the May demand for Kansas crude oil at 168,700 bbls. daily, as compared with the estimate of 173,000 bbls. daily for April.

The Aldrich pool of western Ness County was extended one-half mile eastward at Continental Oil Co. No. 2 Aldrich, NE SE section 8-18-25w. It had initial potential of 1,170 bbls. of oil daily from Mississippi lime at 4,347 feet, total depth. Further extension of the Aldrich area is being sought at Schoeppel & Elmore No. 1 Moses, SW NW section 10-18-25w, wildcat more than 1½ miles east and slightly north of the new extension producer.

Extension of the Zenith pool, Stafford County, one-half mile to the north was assured at Stanolind Oil & Gas Co. No. 1 Hayes, SW SW SE section 11-24-11w, said to be checking higher geologically than any well in the pool. Saturation was found in top of Misener sand at 3,775 feet and operators were running 7-inch casing.

Wildcat Operations

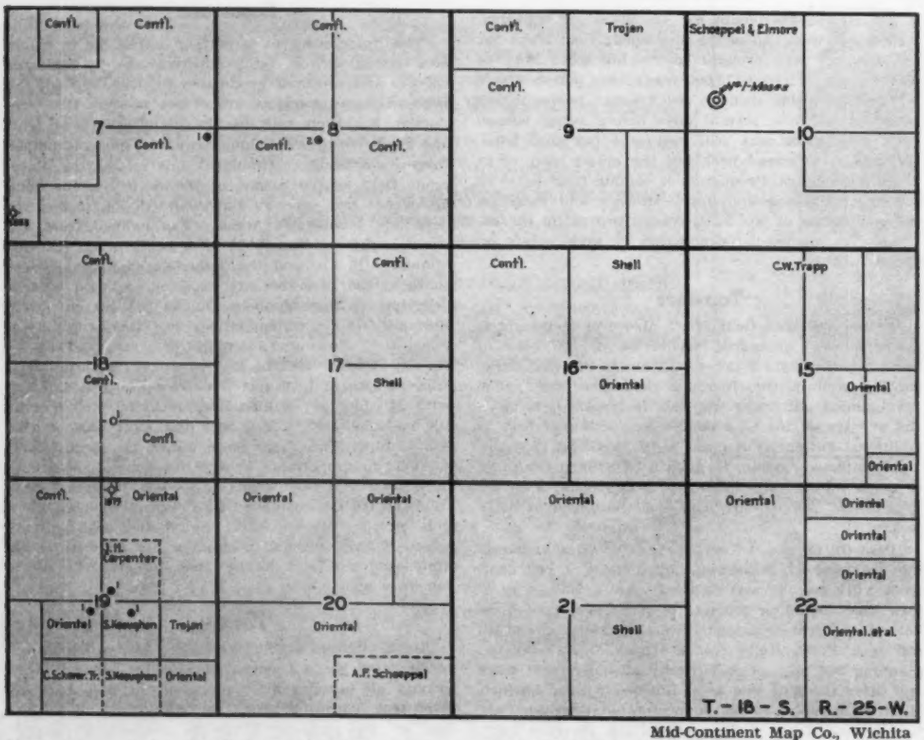
Wildcats completed in Kansas the past week included four discovery wells and six failures.

Continental Oil Co. and others No. 1 Fair, C N half N half SW section 12-25-13w, 4 miles south of the St. John pool, was one of two pool openers completed in Stafford County. It had Arbuckle lime at 4,151 feet, total depth 4,162½ feet, was acidized, pumped 333 bbls. of oil in eight hours and made potential of 853 bbls. of 36.8-gravity oil. The new area tentatively has been called the Leesburgh pool. Continental has leases on 1,920 acres in the area.

The other Stafford County discovery completed was National Refining Co. No. 1 Bonham, SW SW SE section 28-25-12w, about 8 miles southwest of the town of Stafford. It found Arbuckle lime at 4,200 feet, was bottomed at 4,213 feet, was acidized, pumped 113 bbls. of oil in eight hours, with a showing of water, and made potential of 330 bbls. Gravity of the oil was 34.7 degrees.

Crown Petroleum Co. No. 1 Schartz, SW SE NW section 7-20-11w, opened a new area west of the Ellinwood pool in Barton County. It pumped 187 bbls. of oil in eight hours, gaining potential rating of 473 bbls. of oil. Production was from Arbuckle lime topped at 3,346 feet, total depth 3,352 feet.

Graham County's first pool opener was completed at Continental Oil Co. and Cities Service Oil Co. No. 1 Morel C W half E half NE section 15-9-21w, with production for potential of 2,105 bbls. of oil. It pumped 351 bbls. the first four hours and 358 bbls. the next four hours. Production was from Arbuckle lime at 3,711 feet, total depth 3,718 feet. Other tops: Anhydrite 1,690 feet; Topeka 3,175 feet; Kansas City lime 3,410 feet; Conglomerate 3,670 feet, and Simpson zone 3,697 feet.



Mid-Continent Map Co., Wichita

Extension of the Aldrich pool, Ness County, about 1½ miles to the east is sought at Schoeppel & Elmore No. 1 Moses, section 10-18-25w

Estimated Daily Production

Estimated daily production for Kansas for the week ending April 23 and for the preceding week was as follows:

	Barrels	
	Apr. 23	Apr. 16
Oxford City	2,200	2,250
Burrton	11,650	11,700
Ritz-Canton	5,825	5,725
Graber	3,225	2,275
Hollow-Nikkel	3,250	3,325
Lerado	1,225	925
Voshell	2,725	2,775
Wellington	2,725	2,775
Ellsworth County:		
Lorraine	2,950	2,200
Other pools	1,490	995
Rice-Barton counties:		
Bloomer	3,425	2,550
Chase	6,125	4,900
Geneseo	3,300	1,800
Raymond	1,100	475
Silica	16,325	11,325
Silica—South	2,450	2,155
Keesling	1,125	800
Wherry	4,200	3,575
Miscellaneous Rice	3,990	3,350
Miscellaneous Barton	6,950	4,555
Russell County:		
Fairport	2,050	1,110
Gorham	1,640	1,155
Russell	1,450	940
Sullivan	7,085	5,625
Trapp	9,335	7,255
Miscellaneous Russell	8,655	6,480
Sedgwick County:		
Valley Center	1,005	950
Miscellaneous	2,785	2,690
Ellis County:		
Bemis	6,750	3,150
Miscellaneous	4,790	1,500
Kingman County	565	416
Stafford County	3,090	1,990
Greenwood County	9,050	9,100
Butler County	15,600	15,000
Other fields	21,795	22,134
Total Kansas	181,900	149,925

Several Failures

Other wildcat completions were: Price and others No. 1 Gemeinhardt, NE NE SE section 18-18-10w, Rice County, dry and abandoned at 3,305 feet.

Clyde McKnight and others No. 1 McNickle, SE SE NE section 2-24-11w, Stafford County, dry and abandoned at 3,947 feet, total depth.

Continental Oil Co. and Phillips Petroleum Co. No. 1 Curtis, SE cor. section 26-24-13w, Stafford County, abandoned at 4,191 feet, total depth.

E. B. Shawver and Pryor & Lockhart and others No. 2 McKowen, SW cor. section 18-32-1w, Sumner County, abandoned at 3,779 feet, total depth.

Franklin Drilling Co. and others No. 1 Walts, NE NE SW section 24-34-6w, Harper County, dry and abandoned at 5,197½ feet, total depth.

C. W. Davidson and others No. 1 Elliff, SE NE NE section 35-5s-18w, Phillips County, was abandoned at 600 feet, total depth.

New Kansas wildcats reported the past week included:

Phillips Petroleum Co. No. 1 Miller, C NW SW section 29-13-14w, Russell County, rigging up rotary at 25 feet. R. H. Shields No. 1 Anschutz, SW SW SE section 2-14-13w, Russell County, cellar; Web-Son Oil & Royalty Co. No. 1 Baxter, NW NW SE section 4-15-15w, Russell County, rig; Western Kansas Oil & Refining Co. and others No. 1 Linsner, SW SW SE section 3-17-13w, Barton County, location; Deep Rock Oil Corp. No. 1 Drake, NW NW SE section 4-17-13w, Barton County, building rotary rig; Crown Petroleum Co. No. 1 Wolfe,

SE SW SE section 36-19-12w, Barton County, location; Bennett & Abels and others No. 1 Glass, SE SW NW section 14-25-3e, Butler County, rigging up machine; Max Steinbuchel and others No. 1 Fox, NW SE NE section 25-26-3e, Butler County, an old well, rigging up machine to deepen; Kilby and others No. 1 Skellenger, NE NE SE section 25-23-14, Woodson County, spudded; Ed V. Parsons No. 1 Central Life, SE NW NW section 29-26-14, Woodson County, location.

Barton County

Helmerich & Payne No. 3 Stettinger, SW NW NE section 1-16-14w, Trapp district, Barton County, found Arbuckle lime at 3,284 feet, was bottomed at 3,292 feet, and was acidized with 3,000 and 2,000 gallons. It pumped 334 bbls. of oil the first four hours and made potential of 2,009 bbls.

Shell Petroleum Corp. No. 3 Schneider B, NE NW NW section 1-16-14w, found Arbuckle lime at 3,294 feet. total depth 3,318 feet, was acidized with 4,000 gallons and pumped 431 bbls. of oil in 11 hours. It was reacidized with 2,000 gallons, pumped 294 bbls. of oil in eight hours and made potential of 851 bbls.

Stanolind Oil & Gas Co. No. 10 Panning, NE NE SE section 2-20-11w, Silica district, had Arbuckle lime at 3,271 feet, was bottomed at 3,278 feet and was acidized. It swabbed 189 bbls. of oil in two hours and made potential of 1,929 bbls. of oil.

Same operator's No. 1 Knipp, SE SW SW section 34-19-11w, was dry and abandoned in Arbuckle lime at 3,342-71 feet, total depth.

Three new tests in proven areas of Barton County were reported, as follows: T. C. Johnson No. 7 Bitter, C W half W half NW section 8-16-13w, building rotary rig; British-American Oil Producing Co. No. 1 Templing, SE SW NW section 12-16-14w, rotary rig; Texas Co. No. 4 Disque, NE NE SW section 3-17-11w, cellar.

Rice County

Bridgeport Machine Co. and others No. 7 Habiger, SE NW NW section 5-18-10w, Stumps area, Rice County, had Kansas City pay at 3,007-19 feet, total depth, was acidized, flowed 686 bbls. of oil the first four hours and made potential of 3,577 bbls. of oil.

Frank Hollow and others No. 2 Stout, SE SE NE section 6-18-10w, was acidized, and made potential of 1,988 bbls. of oil from Kansas City lime at 3,012 feet, total depth 3,024 feet.

Continental Oil Co. No. 1 Ainsworth A, SW SW NW section 30-18-7w, an old well, was deepened from 3,147 feet to 3,925 feet and recompleted as a water disposal well.

New work in Rice County: Vickers Petroleum Co. No. 1 Roesler, NW NW SW section 5-18-10w, building rotary rig; Mid-Continent Petroleum Corp. No. 1 Schlicht, NE NE SE section 6-18-10w, building rotary rig; Continental Oil Co. No. 1 Pickerill A, NE NW NE section 24-18-8w, building rotary rig; same operator's No. 4 Lansing A, SE SE SW section 25-18-8w, building rotary rig.

Russell County

The largest producer of three completions in Russell County was Gulf Oil Corp. No. 14 Hoffman, SE NW SW section 31-15-13w, Trapp field. It had Arbuckle lime at 3,258 feet, total depth 3,274 feet, was acidized, pumped 322 bbls. of oil and 8 per cent water in four hours and made potential of 1,932 bbls. of oil, cutting 8 per cent water.

W. C. McBride, Inc., and others No. 3 Jellison, NW NE SW section 19-13-14w, found Kansas City lime at 2,905 feet, total depth 2,935 feet, was acidized and made potential of 1,294 bbls. of oil.

Transwestern Oil Co. and others No. 4 Boomhower, SW cor. section 19-15-13w, pumped 90 bbls. of oil in six hours and made potential of 311 bbls. of oil, cutting 5 per cent water. Top of Arbuckle lime was 3,323 feet, total depth 3,346 feet.

Helmerich & Payne No. 2 Holl, C S half S half NW section 22-14-14w, was a rotary rig. Gulf Oil Corp. No. 8 Mollie, SW SE SE section 25-15-14w, was building rotary rig.

Ellis County

Margay Oil Co. No. 8 Johansen, NE SE SE section 22-11-17w, Bemis field, Ellis County, had Arbuckle lime at 3,365 feet, total depth 3,371 feet, and made potential of 3,213 bbls. of oil.

Same company's No. 4 Bemis E, NE NW NW section 28-11-17w, made potential of 2,186 bbls. of oil from Arbuckle lime topped at 3,446 feet, total depth 3,448 feet.

Kerlyn Oil Co. No. 3 Rumsey, SW SE SW section 23-11-17w, found Arbuckle lime at 3,458 feet, was bottomed at 3,470 feet, pumped 476 bbls. of oil in four hours and made potential of 2,855 bbls. of oil.

New operations in Ellis County: Margay Oil Co. No. 6 Johansen, NW SE SE section 22-11-17w, rotary rig; same company's No. 2 Bemis E, NE SW NW section 28-11-17w, location; Bridgeport Machine Co. No. 1 Madden, NE NE SW section 4-13-16w, rigging up.

Stafford County

Stanolind Oil & Gas Co. and others No. 3 Ferris, SE NE NW section 23-24-11w, Zenith area, Stafford County, found Misener sand at 3,791 feet, total depth 3,811 feet, flowed 225 bbls. of oil in three hours and made potential of 1,735 bbls. of oil.

Same company's No. 1 Martin, SE SE NW section 14-24-11w, had Misener sand at 3,790-3,815 feet, total depth 3,822 feet, flowed 267 bbls. of oil in four hours and made potential of 1,402 bbls.

Stanolind Oil & Gas Co. No. 1 Sittner, SW SW NE section 33-21-12w, Sittner pool, had Arbuckle lime at 3,612 feet, total depth 3,620 feet, was acidized and made potential of 1,764 bbls. of oil.

Derby Oil Co. No. 5 McComb, SW NW NW section 24-24-11w, was a cellar. Sinclair Prairie Oil Co. No. 1 McComb, NW NW SW section 24-24-11w, was a location.

McPherson County

Continental Oil Co. No. 1 Meyers, SE SE NW section 20-21-1w, Graber pool, McPherson County, found Hunton lime at 3,291 feet, total depth 3,342 feet, acidized and made potential of 507 bbls. of oil.

Carter Oil Co. No. 1 Nelson, C E half NE SE section 7-1-3w, Lindsborg pool, topped Viola lime at 3,344 feet, total depth 3,372 feet, was acidized, pumped 56 bbls. of oil and 5 bbls. of water in four hours and made potential of 338 bbls. of oil, with 30 bbls. of water.

New work in McPherson County: Nadel & Roth No. 2 Almen, SE SW SE section 13-19-3w, an old well being deepened from 3,031 feet, drilling at 3,035 feet; Jess Cling and others No. 2 Unruh, C NE SW section 25-19-2w, location; Continental Oil Co. No. 3 Chavez, SW SW NE section 20-21-1w, rotary rig; Ohio Oil Co. No. 16 Decker, SW SE NE section 20-21-1w, location; Continental Oil Co. and others No. 12 Hetzke, SE SE NE section 29-21-1w, building rotary rig.

Ellsworth County

Continental Oil Co. and others No. 7 Rolfs, CNL NW section 34-17-8w, Edwards area, Ellsworth County. topped Arbuckle lime at 3,239 feet, was bottomed at 3,254 feet and pumped 320 bbls. of oil in four hours after acidizing, making potential of 1,926 bbls. of oil.

Cities Service Oil Co. and others No. 2 Schroeder A, C N half N half SW section 29-17-9w, Schroeder area, was rigging up rotary.

Butler County

Rex & Morris No. 1 Johnson, SW SE SE section 20-26-7, Butler County, found Kansas City lime at 2,180 feet, pay 2,196-2,208 feet, total depth, was acidized and pumped 65 bbls. of oil in 24 hours.

Polhamus and others No. 8 Semisch, NW NE NE section 5-28-7, Keighley pool, was a rig.

(Continued on Page 103)

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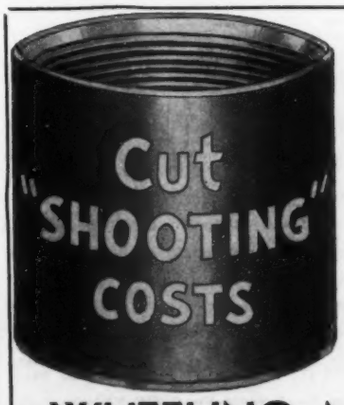

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2 1/2	2.730	2 5/8	11 1/2	STRAIGHT	965
3	3.260	2 7/8	11 1/2 to 8	STRAIGHT OR TAPER	1350
3 1/2	3.870	3 1/8	11 1/2 to 8	TAPER	2125
4	4.300	3 3/8	11 1/2 to 8	TAPER	2590

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Rocky Mountain Area

By
T. R. INGRAM

14 New Wells in Lea County; Northern Fields Very Quiet

DENVER, Col., Apr. 25.—Fifteen producers were recorded in southeastern New Mexico the past week, one in Eddy County and the remainder in Lea County.

Six of the new producers were in the Vacuum area, as follows:

Texas Co. No. 1-0 State, C SW NW section 36-17-34, topped pay at 4,405 feet, total depth 4,720 feet, and flowed 713 bbls. of oil in 21 hours.

Shell Petroleum Corp. No. 1-A State, C NW NE section 31-17-35, had pay at 4,302 feet, was bottomed at 4,664 feet, and flowed 380 bbls. of 35-gravity oil through tubing in 7½ hours. Gas gauged 972,000 feet.

Amerada Petroleum Corp. No. 1 State VA, C SE SW section 23-17-34, flowed 182 bbls. of oil in 8 hours from pay topped at 4,352 feet, total depth 4,740 feet.

Continental Oil Co. No. 1-H-35 State, C SE NE section 35-17-34, had pay at 4,400 feet, total depth 4,700 feet, and flowed 62 bbls. of oil in 2 hours, with 627,000 feet of gas.

George F. Getty No. 2-F State, C NW NE section 36-17-34, flowed at the rate of 47 bbls. of oil an hour, with 600,000 feet of gas. Pay was topped at 4,360 feet, total depth 4,650 feet.

Ohio Oil Co. No. 1 State-Staplin, C SE SW section 30-17-35, found pay at 4,320 feet, total depth 4,702 feet, and flowed 200 bbls. of oil in 10 hours.

Other Lea County completions:

Intercoast Petroleum Co. and J. C. Clower No. 1 State, SW SW NW section 2-23-37, apparently limited the eastern side of the Skelly sand pool. It had a showing of oil at 3,560 feet, but sulfur water intruded and it was abandoned at 3,658 feet, total depth.

Parker Drilling Co. No. 1 Irwin Permit, C E half SW SW section 35-24-37, flowed 70 bbls. of oil in 12 hours and produced 4,250,000 feet of gas. Top of pay was 3,384 feet, total depth 3,480 feet.

Repollo Oil Co. No. 4 Moseley, SW SE SE section 34-24-37, topped pay at 3,355 feet, total depth 3,435 feet, and flowed 340 bbls. of oil in 24 hours.

Same company's No. 3-B Whitten, NE SE NE section 4-24-36, flowed 156 bbls. of oil in 12 hours from pay found at 3,596 feet, total depth 3,640 feet.

Gulf Oil Corp. No. 1-D Mattern, C NE SW section 6-22-37, topped pay at 3,765 feet, total depth 3,795 feet, flowed 41 bbls. of fluid daily.

Same company's No. 1 Whitten, SE SE SW section 33-23-36, had initial production of 256 bbls. of oil daily from pay topped at 3,631 feet, total depth 3,666 feet.

Gulf Oil Corp. No. 7-F Bell, C SW NW section 36-20-36, found pay at 3,787 feet, was bottomed at 3,855 feet, and flowed 303 bbls. of oil daily, with 430,000 feet of gas.

One well in Eddy County was completed at Repollo Oil Co. No. 1-B Parke, SW corner section 15-17-30 Jackson pool. It had pay at 3,228 feet, was bottomed at 3,270 feet, and flowed 150 bbls. of oil daily. pumping.

Lea County

Addison Oil Co. No. 2 Knight, C SW NW sec. 27-24-37. Cellar and pits.
Amerada Pet. Corp. No. 6 Byrd, SE sec. 12-20-36. Loc.
Amerada Pet. Corp. No. 3 Laughlin, C NW NE sec. 9-20-37. T.D. 2,855 ft.; set 8-in. 2,573 ft.
Amerada Pet. Corp. No. 1 State VB, C NE SW sec. 36-17-34. S.O. 4,501 ft.; cmtd.
Amerada Pet. Corp. No. 1 Frances Stuart, NE NW NE sec. 22-25-37. Drlg. 2,470 ft.
Anderson-Prichard Oil Corp. No. 2 Langlie, SE sec. 8-25-37. Drlg. 3,420 ft.
Anderson-Prichard Oil Corp. No. 4 Langlie, NE SW NE sec. 8-25-37. Drlg. 2,955 ft.
Anderson-Prichard Oil Corp. No. 1 Wells, C SE SE sec. 5-27-37. Drlg. 3,610 ft.
Anderson-Prichard Oil Corp. No. 2 Wells, C SW SE sec. 5-27-37. Loc.
Bradley Oil Co. No. 1 Downes, SE NE SE sec. 5-22-37. T.D. 3,755 ft.; swb. 110 B.O.P.D.; rng. csg.
Cities Service Oil Co. No. 3-A Closson-A, C NE SE sec. 18-22-36. T.D. 3,542 ft.; W.O.C.; gas est. 200,000,000 ft.
Cities Service Oil Co. No. 1-H State, C NE NE sec. 17-22-36. T.D. 3,884 ft.; prep. to deepen.
Continental Oil Co. No. 2-F-1 State, C SW NE sec. 1-21-36. Drk.
Continental Oil Co. No. 1-J-2 State, C NW NE sec. 2-22-36. Loc.
Continental Oil Co. No. 1-B-15 Britt, C W½ NW NW sec. 15-20-37. Drlg. 2,155 ft.
Continental Oil Co. No. 2-A-20 Jack, C SE SE sec. 20-24-37. Drlg. 1,630 ft.
Continental Oil Co. No. 1-A-31 Marsh, SE sec. 31-20-39. Wildcat; T.D. 4,346 ft.; fsg.
Continental Oil Co. No. 4 Reed B-23, C E½ NW NE sec. 23-20-36. Drlg. 2,740 ft.
Continental Oil Co. No. 4-E-17 State, C SW NW sec 17-22-36. Drlg. 2,207 ft.
Continental Oil Co. No. 1-F-1 State, C SW SW sec. 1-21-36. T.D. 3,935 ft.; P.B. 3,838 ft.; 396,000 ft. gas; tstg
Continental Oil Co. No. 1-G-12 State, C SE SW sec. 12-18-35. Drlg. 5,101 ft.
Continental Oil Co. No. 1-I-16 State, C NW NW sec. 16-18-35. Drlg. 3,868 ft.
Cranfill & Germany No. 1 Weir, C NE NE sec. 15-20-37. T.D. 4,210 ft.; S.D.O.
Culbertson & Irwin No. 3 Alston, NE cor. sec. 27-25-37. T.D. 3,150 ft.; tstg.
Culbertson & Irwin No. 6-A Humphrey, NE SW SE sec. 3-25-37. Drlg. 2,165 ft.
Culbertson & Irwin No. 2 Liberty Royal, C N½ SW NW sec. 3-25-37. Drk.
Dangiade & Clower No. 1 Currie, NE NE SW sec. 6-21-37. T.D. 3,773 ft.; shot; flwd. 100 B.O.P.D.
Dangiade & Clower No. 1 Glier, C SW NE sec. 32-22-37. T.D. 3,680 ft.; C.O.; flwd. 105 B.O. in 48 hrs. through csg.
L. E. Elliott No. 2 Elliott, NE NW SE sec. 26-20-36. Drlg. 3,320 ft.
A. R. Eppenauer No. 1 Stuart, NW NE NE sec. 22-25-37. T.D. 3,373 ft.; flwd. 15 B.O.P.H. at 3,321 ft.
J. E. Farrell No. 2-C Walden, C SE SW sec. 15-22-37. Drlg. 3,700 ft.
Great Western Prod. Co. No. 1-C State, C NE SW sec. 7-19-37. Drk.
Gulf Oil Corp. No. 1 Alley, C NE SE sec. 10-23-37. Drlg. 3,548 ft.
Gulf Oil Corp. No. 1 Boyd, sec. 23-22-37. T.D. 3,681 ft.; tstg.
Gulf Oil Corp. No. 2-D Kutter, C SE SW sec. 8-19-37. T.D. 4,155 ft.; P.B. 4,100 ft.; S.D.O.
Gulf Oil Corp. No. 4-C Kutter, C SW NW sec. 18-19-37. Drlg. 2,885 ft.
Gulf Oil Corp. No. 4 McCormack, C SW SE sec. 32-21-37. T.D. 3,615 ft.
Gulf Oil Corp. No. 2 Ramsey, C SW SW sec. 27-21-36. T.D. 3,895 ft.; P.B. 3,871 ft.; to reshoot.
Humble O. & R. Co. No. 5 Fopeano, C E½ SW SE sec. 26-20-36. Loc.
Humble O. & R. Co. No. 3-H State, C NW NW sec. 34-22-37. Drk.
Humble O. & R. Co. No. 3 Williams, C SW NW sec. 34-24-37. T.D. 3,532 ft.
Jal Nat. Gas Corp. No. 2 Justis, NE sec. 20-25-37. T.D. 3,029 ft.; tstg.
Carl B. King No. 1-A Stuart, NW NE NW sec. 14-25-37. Drlg. L. 3,140 ft.
Magnolia Pet. Co. No. 1 Brunson-Argo, C NW NE sec. 9-22-37. Drlg. 2,675 ft.
Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 34-17-34. T.D. 4,905 ft.; P.B. 4,794 ft.
Magnolia Pet. Co. No. 2-K State, C NE SE sec. 31-17-35. Drlg. 3,330 ft.
Magnolia Pet. Co. No. 2 State-Bridges, sec. 14-17-34. T.D. 4,593 ft.; flwd. 51 B.O. in 1 hr., naturally.
Magnolia Pet. Co. No. 3 State-Bridges, C NE NW sec. 26-17-34. Drlg. 2,220 ft.
Magnolia Pet. Co. No. 4 State-Bridges, C NW NE sec. 26-17-34. T.D. 4,758 ft.; acd.; flwd. 116 B.O. in 30 hrs.; tstg.
Magnolia Pet. Co. No. 5 State-Bridges, C NE NW sec. 26-17-34. T.D. 4,750 ft.; acd.; flwd. 130 B.O.P.D.; tstg.
Magnolia Pet. Co. No. 6 State-Bridges, C SW NW sec. 23-17-34. Drlg. 2,165 ft.
Maljamar O. & G. Co. No. 9 Baish, C NW NW sec. 21-17-32. Drlg. 790 ft.
Maljamar O. & G. Co. No. 4 Mitchell, C NE NE sec. 20-17-32. Loc.
Jas. A. Mascho No. 2 Cloyd, C SW SW sec. 20-22-33. Loc.
C. T. McLaughlin No. 1 Polhamus, NE sec. 9-24-37. T.D. 3,672 ft.; S.D.O.
National Drlg. & Prod. Co. No. 1 Flint, C NE NE sec. 29-20-34. Wildcat; drlg. 3,710 ft.
Ohio Oil Co. No. 1 Kutter D, C SW SW sec. 18-19-37. Drlg. 3,625 ft.
Ohio Oil Co. No. 1 State-Fleming, NE cor. sec. 2-26-37. M.I.M.
Ohio Oil Co. No. 7 State-McDonald, C SW SE sec. 16-22-36. T.D. 3,871 ft.; C.O.
Ohio Oil Co. No. 10 State-McDonald, C NE SW sec. 16-22-36. Drlg. L. 3,547 ft.
Ohio Oil Co. No. 2 State-Warn, C NE SW sec. 31-17-35. Drk.
Paton Bros. No. 2 Wilkinson, C SE SE sec. 8-18-31. Loc.
Lem Peters No. 1 May, C NW SE sec. 27-22-37. Drlg. 1,040 ft.
Phillips Pet. Co. No. 2 Santa Fe, C SW SE sec. 30-17-35. T.D. 4,685 ft.; acd.; swb. 450 B.O. in 24 hrs.; rng. tbg.
Phillips Pet. Co. No. 3 Santa Fe, C SW NW sec. 5-18-35. Rig.
Plains Prod. Co. No. 1 Humphreys, NE sec. 3-25-37. Loc.
Repollo Oil Co. No. 2 Hair, NW SW NW sec. 9-24-37. Cellar and pits.
Repollo Oil Co. No. 1 State, SE cor. sec. 6-17-34. Drlg. 3,913 ft.
Repollo Oil Co. No. 2-B State, NE SE NW sec. 7-22-36. T.D. 1,620 ft.; rng. csg.
Repollo Oil Co. No. 4-B Whitten, NE NE SE sec. 4-24-36. Loc.
Harry J. Schafer No. 1-A State, C E½ NW NE sec. 26-20-36. Drlg. 3,002 ft.
Shasta Oil Co. No. 2 Woolworth, NE NW NW sec. 28-24-37. T.D. 3,015 ft.; fsg.
Shell Pet. Corp. No. 1-A State, C NW NE sec. 31-17-35. T.D. 5,289 ft.
Shell Pet. Corp. No. 2-A State, C SW NE sec. 31-17-35. T.D. 4,276 ft.
Shell Pet. Corp. No. 4-E State, C SW NW sec. 12-20-36. Drlg. 3,800 ft.
Skelly Oil Co. No. 5 J. B. Baker, C SE NW sec. 27-22-37. T.D. 3,620 ft.; tstg.
Skelly Oil Co. No. 3 G. W. Sims, C NW NE sec. 9-23-37. T.D. 3,642 ft.; C.O.
Skelly Oil Co. No. 1-C R. R. Sims, sec. 3-23-37. Drlg. 3,688 ft.
Skelly Oil Co. No. 1-E W. P. Sims, C NW NE sec. 10-23-37. T.D. 3,625 ft.; flwd. 452 bbls. in 24 hrs.
Skelly Oil Co. No. 1-L State, C SW NW sec. 2-25-37. Cellar and pits. No. Explo. Co. No. 2 Downes, C SW SW sec. 32-21-37. T.D. 2,670 ft.; S.D.
Stanolind O. & G. Co. No. 2-A Hill, C NE SE sec. 6-21-37. T.D. 1,400 ft.; W.O.C.
Stanolind O. & G. Co. No. 2-C Hill, C NW NW sec. 5-21-37. Drlg. 3,715 ft.; S.S.O.&G.
Stanolind O. & G. Co. No. 5-B Myers, C NE SW sec. 9-24-37. Loc.
W. H. Street No. 4 Woods, C NE NE sec. 22-22-37. Drlg. 2,460 ft.
Texas Co. No. 3 Black, C NW NE sec. 21-24-37. T.D. 205 ft.; W.O.C.
Texas Co. No. 1 Corbin, C NW SW sec. 19-18-33. T.D. 5,118 ft.; P.B. 5,112 ft.; W.O. new tools.
Texas Co. No. 4 Fristoe, NW NE SE sec. 3-25-37. Drlg. 1,100 ft.
Texas Co. No. 1-N State, C SW SW sec. 30-17-35. Drlg. 4,552 ft.
Texas Co. No. 2-O State, C SE NE sec. 36-17-34. T.D. 1,550 ft.; W.O.C.
Texas Co. No. 1-P State, C NW SE sec. 7-18-35. Drlg. 3,065 ft.
Texas Pacific C. & O. Co. No. 10-A State, Acct. 2, C W½ SW SW sec. 8-22-36. T.D. 3,710 ft.; drlg. plug.
Texas Pacific C. & O. Co. No. 11-A State, Acct. 2, C SE NE sec. 7-22-36. T.D. 3,110 ft.
Sam Weiner No. 1 Smith, NE cor. sec. 4-25-37. Drlg. 2,200 ft.
Weiner No. 1 Parcell, C SW NE sec. 8-23-28. Drlg. 930 ft.
Western Gas Co. No. 1 Curry, C SE SE sec. 1-24-36. Drlg. 2,975 ft.; S.O.&G.
Western Gas Co. No. 1 Matkins, C SE SE sec. 15-23-36. T.D. 3,638 ft.; cmtd.

Eddy County

F. E. Baker No. 1 Eddy, NE sec. 12-22-27. T.D. 2,117 ft.; C.O.
Barnett Oil Dev. Co. No. 1 King Permit, C NW SE sec. 23-26-30. T.D. 980 ft.; S.D.
Carper Drlg. Co. No. 3 Gissler, C E½ E½ NW sec. 23-17-30. Drlg. 3,175 ft.; S.O.&G. 3,063 ft.
Danciger O. & R. Co. No. 4-A Turner, C SW SW sec. 18-17-31. Drlg. 2,895 ft.
Danciger O. & R. Co. No. 1-B Turner, CEL NE SE sec. 17-17-31. Loc.
D. & B. Oil Co. No. 3 Jenkins, NE NE NW sec. 20-17-30. Drlg. 1,140 ft.
Emperor Oil Co. No. 4 Puckett, C NE NE sec. 24-17-31. T.D. 3,975 ft.; swb. est. 50 B.O.P.D.
Emperor Oil Co. No. 5 Puckett, C SW NE sec. 24-17-31. Drlg. 3,835 ft.; swb. 35 B.O.P.D. while drlg.
Etz Bros. No. 5 State, SE NE SE sec. 16-17-30. Loc.
Finley & Cherry No. 1 Buchley, C NW NW sec. 28-16-31. Wildcat; T.D. 3,750 ft.; S.D.
Flint Prod. Co. No. 1-B State, SE sec. 20-17-30. Drlg. 3,830 ft.
C. J. Frederick No. 1 Reed, C NE SW sec. 28-24-28. Drlg. 2,394 ft.
F. W. & Y. Oil Co. No. 8-A Gissler, NE NW NE sec. 23-17-30. T.D. 3,237 ft.; fsg.
F. W. & Y. Oil Co. No. 9-A Gissler, C SE NE sec. 14-17-30. T.D. 3,500 ft.; S.O.&G.; prep. to swb.
F. W. & Y. Oil Co. No. 1-B Gissler, SW sec. 14-17-30. T.D. 3,492 ft.; to acd.
F. W. & Y. Oil Co. No. 2-B Gissler, C NW NW sec. 24-17-30. C.O. 3,495 ft.; swb. est. 225 B.O.P.D. while C.O.
F. W. & Y. Oil Co. No. 3 Jackson, C NW SE sec. 13-17-30. T.D. 2,953 ft.; fsg.
Grayburg Oil Co. No. 4 Keely, SE SW NE sec. 24-17-9. T.D. 3,588 ft.; to test.
H. A. Hartwell No. 1 Vandagrift, NE NE SE sec. 8-18-27. T.D. 2,000 ft.; S.D.O.
R. L. Holcomb No. 1 State, NW sec. 22-17-28. T.D. 1,980 ft.; S.D.O.
C. F. Ingram No. 1 Page, NE NE SW sec. 15-21-28. T.D. 1,495 ft.; S.D. for new rig.
B. M. Koehane et al No. 1 Shannon, SE cor. sec. 27-16-31. Drlg. L. 3,951 ft.
Paul Moran No. 1 Crawford & Smith, NW NW SW sec. 24-24-26. Drlg. 1,285 ft.
Murchison & Closuit No. 1 Foster, SE NE SE sec. 17-17-31. Drlg. 3,075 ft.; S.O. 3,036 ft.; cmtg.
Murchison & Closuit No. 2-A State, NW SE SW sec. 16-17-31. Drlg. 3,500 ft.; S.O. 3,378 ft.
Pecos Valley Gas Co. No. 1 Sappenfield, C SE SE sec. 4-16-28. T.D. 2,364 ft.; S.D.O.

Premier Pet. Co. No. 1 Beeson, NE SE SE sec. 28-17-30. Drlg. 3,110 ft.
Red Gulch Oil Co. No. 2 Keyes, C SW SE sec. 4-17-28. Drlg. 1,221 ft.
Repollo Oil Co. No. 2-C McIntyre, NE cor. sec. 20-17-30. T.D. 2,944 ft.; W.O.C.
Repollo Oil Co. No. 2-A Parke, NW NW NE sec. 22-17-30. Drlg. L. 3,305 ft.
Repollo Oil Co. No. 3-A Parke, NW cor. sec. 22-17-30. R.U.M.
Paul Sarget No. 1 State, NE sec. 16-17-31. T.D. 3,749 ft.; P.B. 3,745 ft.; tstg.
R. A. Shugart No. 1 Coulthard, C NW SW sec. 35-18-31. C.O. 3,500 ft.; swb. 85 B.O.P.D.; tstg.
W. K. Royalty No. 2 State, C NW NE sec. 16-17-31. Drlg. 3,443 ft.
W. O. Snyder No. 1 Pecos Irrigation, C NE SE sec. 15-25-28. T.D. 3,330 ft.; S.D.O.
Western Drlg. Co. No. 1-A Western, SE SW NW sec. 23-17-29. Drlg. 1,960 ft.

Chaves County

E. J. Fisher No. 1 Etz Permit, NE sec. 23-7s-26. T.D. 1,610 ft.; S.D.
Grastorf & Caudill No. 1 Smith, C NE NE sec. 1-4s-29. Wildcat; T.D. 680 ft.; S.D.O.
Interstate Minerals, Inc., No. 1 Dunigan, NW cor. sec. 15-15-30. Loc.
J. & L. Drlg. Co. No. 2 Hurd, SW sec. 11-11-28. T.D. 1,000 ft.

De Baca County

Land Owners Oil Co. No. 1 McAdoo, SW cor. sec. 16-1s-7e. O.W.; prep. to deepen from 5,850 ft.; S.D.
James D. Ward No. 1 Summers, NW NE SW sec. 17-4n-20. T.D. 260 ft.; S.D.
N. F. Woods No. 1 Jones, C NE SW sec. 17-4n-20. T.D. 25 ft.; S.D.

Dona Ana County

Jules C. Bertrand No. 1 Casad Permit, sec. 24-26-5e. T.D. 47 ft.; S.D.O.

McKinley County

S. Dysart No. 1 Govt., NE sec. 14-14-10w. T.D. 1,390 ft.; fsg.

Otero County

Fred Turner, Jr., No. 1 Ella Everett, C SE SE sec. 34-22-13. Drlg. 2,840 ft.
Fred Turner, Jr., No. 1 H. V. Everett, SE SE sec. 28-22-13. Drlg. 1,700 ft.

Roosevelt County

C. S. Peterson and Conquistadores Oil Co. No. 1 Good, NW SE SE sec. 28-5s-30. T.D. 720 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW sec. 19-11n-4e. T.D. 3,750 ft.; M.I. 6⅝-in. and 3-in. D.P. to resume.

San Juan County

Continental Oil Co. No. 74 Rattlesnake, CEL SE NE sec. 2-29n-19w. T.D. 790 ft.; cmtg. off bttm. wtr.
Frank Lischke No. 1 Abreo, SW SW sec. 27-30n-11w. Fsg. tools at 520 ft.
Anna Oil Corp. No. 6 Govt., SW NE NE sec. 33-30n-11w. S.D. 1,870 ft.; (C.D.) for csg.

Socorro County

Central New Mexico Oil Co. No. 1 Belen Ld. Grant, NW sec. 16-3n-1e. Drlg. below 2,850 ft.

Torrance County

Chief O. & G. Co. No. 1 Pace, SE sec. 12-6n-7e. T.D. 2,020 ft.; fsg.

Valencia County

Old Spanish Grants, Inc., No. 1 San Clemente, C SE SW sec. 23-7n-1e. Contr. to Wm. Hix to drill for acreage spread; M.I. rotary.
C. A. Grober et al No. 1 Fuqua, NE NE sec. 19-5n-3e. T.D. 900 ft.; bldg. steel drk. for rotary.

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COLORADO

Archuleta County

Pagosa Oil & Dev. Co. No. 1 Macht, S sec. 32-36n-1w. Set 10-in. at 675 ft.; drlg. ahead.

Cheyenne County

Gulf Oil Corp. No. 1 Union Pacific-Larsen, C SE NW sec. 13-13s-49w. Drlg. hd. L. 5,185 ft.

Fremont County

Isador Spengler No. 1 St. Mary's, SE SE SE section 2-19s-70w, the only well drilled in the old Florence field for a long time, was completed at 1,800 feet and is estimated at 10 bbls. per day from shale at 1,500 feet and 1,720 feet.

LaPlata County

N. Spatier No. 1 Bryce, SE SW SW sec. 31-33n-9w. T.D. 1,510 ft.; drlg. by.

Larimer County

The Amerada Petroleum Corp. placed on record last week at Fort Collins leases on approximately 3,660 acres in separate tracts around Clark's Lake, about 5 miles east of the Wellington field, which is operated by the Continental Oil Co. It is understood that the acreage was acquired a year or two ago when the company had extensive geophysical surveys made along the front range as far south as the old Boulder field. The area is 15 to 20 miles south of the Borie high in Wyoming where the company drilled a deep test in 1936.

Prowers County

The test to be drilled on the Cottonwood block by the Continental Oil Co. will be located on the Rosabel Ruby tract in section 31-21s-44w, probably in the northwest of the section, but final location has not yet been released.

Pueblo County

The wildcat which began spudding in the Boggs Flat district southwest of Pueblo on April 5 by C. E. Puckett is in the NW section 35-21s-66w. This puts it about 3 miles west of the Colorado Oil Co. wells drilled several years ago on the Drobnick ranch and 6 miles south and a little west of the old Overland well drilled by the Midwest Refining Co. several years ago in the SE section 36-20s-66w. This well went to 3,945 feet and had the first Dakota at 75 feet and the Millsap lime at 3,880 feet. It had a show of oil at 2,770 feet in red lime.

WYOMING

Big Horn County

Prescott & Mileski No. 1 Govt., NE NW SW sec. 15-1n-93w. Drlg. 536 ft.
Clifford S. Johnson No. 1 Johnson, CEL NW NW sec. 24-51n-93w. Rig; (cor.); W.O. engine.
Joan Oil Co. No. 1 Howell, NE NW NE sec. 32-55n-97w. T.D. 2,360 ft.; will test good show grn. oil at 2,357-60 ft.

Carbon County

Producers Oil Co. No. 1 Lake Valley, 200 ft. S of CNL sec. 14-20n-88w. Res. drlg. 1,755 ft.; 12½-in. at 1,588 ft.
Wyco Oil Co., Inc., No. 1 Union Pacific, NE SE NE sec. 3-23n-79w. Spdg.
Ohio Oil Co. No. 3 Hazlett Est., NE SW SE sec. 34-23n-79w. Drlg. 311 ft.; 10-in. at 248 ft.
Ohio Oil Co.-California Co. No. 3 State-Griffin, C SW NW sec. 36-21n-79w. T.D. 550 ft.; cmtd. 13⅜-in. at 399 ft.; W.O.C.

Converse County

New Era Fuel Co. No. 1 Boot Cattle, CSL SE SE sec. 1-31n-70w. Spdg.
E. B. Jones No. 1 O'Meara-Govt., NW SE NE sec. 17-32n-69w. Spdg.; (first report).
Wyshawn Oil Co. No. 1 Lindley, NW SE SE sec. 34-32n-69w. T.D. 600 ft.; U.R. 10-in.

Fremont County

Sinclair-Wyoming Oil Co. No. 2-B Muskrat, NW NW NE sec. 4-33-92w. Drlg. plg. at 4,531 ft.; to go to Dakota.
Stanolind O. & G. Co. No. 1 Govt., C SE SE sec. 3-33n-96w. Cg. 8,716 ft. in Sundance; expect basal sd. at 8,850 ft.

Natrona County

Stanolind O. & G. Co. No. 26 T.P.-Wyo. Asso., C SE SW sec. 26-40n-79w. C.&P.
Western Producers, Inc., No. 1 Govt., NW SW SE sec. 5-39n-78w. Drlg. 1,156 ft.
Stanolind O. & G. Co. No. 8 T.P.-Midwest Oil, C NW SW sec. 35-40n-79w. Loc.; W.O. compl. No. 26.
Stanolind O. & G. Co. No. 26 T.P.-Wyo. Asso., C SE NW sec. 35-40n-79w. Drlg. brkn. sd. 2,545 ft.
General Pet. Corp. No. 1 Govt., C NW SE sec. 21-35n-77w. Cg. 7,720 ft.; expect Dakota at 8,000 ft.

Niobrara County

The only completion in Lance Creek was the Argo Oil Co. No. 5 Ford, near C SW SE section 33-36n-65w, an outside well in the Sundance pool on the east side. It flowed 650 bbls. the first 24 hours through the tubing from the basal Sundance at 4,076 feet, total depth. The 7-inch is at 4,042 feet. It is a diagonal offset on the southeast to the same company's No. 4 Ford, which had water in the Sundance at 4,042-4,118 feet, but was completed as a producer in the Leo sand.

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Continental Oil Co. No. 12 Tom Bell, C SE SE sec. 33-36n-65w. Bldg. drk.
A. B. Cobb et al No. 3 Novick-Ong, SW SE SW sec. 6-35n-65w. Drlg. 3,570 ft.
MacKinnie Oil & Drlg. Co. No. 3 Thompson, NW NE NW sec. 7-35n-65w. Drlg. r.b. 4,385 ft.
Minnelusa Oil Co. No. 2 H. & M., NW NE NE sec. 8-35n-65w. S.D.O. 325 ft. after cmtg. 13⅜-in.
Continental Oil Co. No. 11 Tom Bell Cattle, SE SW SW sec. 27-36n-65w. Drlg. 4,152 ft.
Hewitt Bros. and Manning No. 1 Pecklow, SE SE SE sec. 1-35n-66w. Drlg. 3,065 ft.
Ohio Oil Co. No. 10 Putnam, NW SE NW sec. 4-35n-65w. Drlg. 4,391 ft.; top r.b. 4,180 ft.; Wtr. in basal Sundance.
H. D. Moore et al No. 1 Beregren, NW sec. 23-35n-63w. Drlg. in Sundance 937 ft.; top Morrison 687 ft.

Sweetwater County

Sinclair-Wyoming Oil Co. No. 78, SW SW NW sec. 11-26n-90w. Drlg. r.b. 2,995 ft.
Selegna Oil Co. No. 1 Union Pacific, SW SW sec. 11-20n-104w. T.D. 4,200 ft.; fsg. D.P.

Washakie County

Wyoming O. & R. Co. No. 10-B Brome, C SE NE sec. 6-47n-90w. Drlg. 211 ft.

Weston County

Chas. F. Martens No. 9, NE SW NE sec. 23-46n-64w. Ttsg. W.S.O. with 8¼-in.
Chas. Stough No. 11, CSL SW NW sec. 4-46n-63w. Drlg. below 100 ft.
Osage Trust Co. No. 29, NW SE SW sec. 14-46n-64w. Cmtd. 8¼-in. at unreported depth.
John Brorphy No. 1 George, SW SE NW sec. 26-48n-64w. Recmtd. 6⅝-in. at 3,012 ft.

MONTANA

The final chapter was written the past week in the controversy over proration in the northern Montana fields when Governor Roy Ayers returned to the State Oil Conservation Board all papers and exhibits in the hearing last winter on conditions in that area. The hearing was called at the suggestion of the governor. After taking voluminous testimony, the board denied the application for the establishment of proration by a majority vote. One dissenting opinion was rendered by O. M. Webb, a member of the board, who favored proration. A transcript of the testimony was furnished the governor by the board following its decision. The two sides to the controversy then supplied the governor with "exceptions" and "exceptions to exceptions." All of this was returned the past week by the governor with the statement that the authority was in the board and without expressing any opinion of his own.

Carbon County

R. C. Tarrant No. 1, 500 ft. W of C sec. 3-6s-18e. Drlg. 140 ft.
R. C. Tarrant No. 2 Heare, NW SE NW sec. 14-6s-19e. T.D. 1,780 ft.; fsg.
Sha-Wa Pet. Co. No. 1 Govt., SW SW NE sec. 35-9s-23e. T.D. 3,223 ft.; P.B. to 3,060 ft.; fsg.
Miracle Oil Co. No. 2 Govt., CWL NE SE sec. 3-6s-23e. Drlg. 2,371 ft.; 5⅛-in. at 2,360 ft.

Fergus County

Baugham & Singley No. 1 Skaggs, C NW SW sec. 7-15n-20e. S.D. 525 ft.

Glacier County

There was one completion in the Cut Bank field. Texas Co. No. 1 Lindquist, C SE SE section 17-32n-5w. which had 440 feet of fluid in the hole at 2,899 feet and is running rods and tubing. No swabbing test was made. It had the Cut Bank at 2,848-68 feet and plugged back to 2,875 feet. There was no Sunburst sand.

The Santa Rita Oil & Gas Co. No. 3 Government, C SW SW section 4-32n-5w, which was reported a completion last week, made 45 bbls. in five hours the first day and 69 bbls. in eight hours the second day in swabbing tests. The pay was at 2,984-3,012 feet.

Nadeau Bros. No. 5 Farmers State Bank, CEL SE NE sec. 17-33n-5w. Drlg. 1,700 ft.
Glacier Prod. Co. No. 2 Eisler, SW NE SW sec. 5-33n-5w. Spdg.
Santa Rita O. & G. Co. No. 1 Jordan, NW NW SE sec. 18-32n-5w. Drlg. 1,150 ft.; Colo. 410 ft.; 10¾-in. at 381 ft.
K. D. Pardee No. 1 Drumheller, NE NW (C Lot 3). sec. 2-33n-6w. Cmtd. 10¾-in. at 660 ft.; Colo. 620 ft.
A. B. Cobb No. 1 State, C NE NE sec. 30-37n-4w. T.D. 2,592 ft.; S.D. until spring.

Lewis and Clark County

Lewis & Clark Oil Synd. No. 1 Heilman, NW NW SW sec. 11-18n-5w. Cmtd. 8¼-in. at 2,190 ft.; drlg. ahd.

Park County

Ben W. Ryan No. 1 Burgee, SE SW NW sec. 28-2s-11e. Drlg. 1,278 ft.

Toole County

Big West Oil Co. No. 7 Gunderson, CEL SE NW sec. 19-35n-2w. Loc.
Rimrock Oil Co. No. 4 Schmidt, CSL SW NW sec. 29-35n-3w. Loc.
Pfabe & Engelking No. 2 Hurley, NE NE NW sec. 8-34n-2w. Loc.
Agen & Goeddertz No. 11 Goeddertz, SW NE SW sec. 23-35n-3w. Drlg. 365 ft.
Deloraine Oil Synd. No. 3 Solberg, SE SW NE sec. 29-35n-3w. Drlg. 1,030 ft.
H. C. Morton No. 8 Morton, C SW NW sec. 24-34-2w. S.D. 590 ft.
Big West Oil Co. No. 6 Gunderson, CWL NE NW sec. 19-35n-2w. T.D. 1,626 ft.; contact 1,621 ft.; acd. 500 gal.; tstg.; (formerly No. 7).
Chas. Grant et al No. 1 Anderson, SE NE NE sec. 26-35n-4w. S.D. 2,109 ft.
West Kevin Community Lease, Inc., No. 1 McClary, SW NE NW sec. 3-34n-4w. Drlg. 1,900 ft.

Yellowstone County

Broadview Dome Oil Co. No. 1 Stallinberger, NE NE SW sec. 18-3n-23e. S.D. 4,565 ft.
Riverton Oil Co. No. 1 Fox, CEL NW NE sec. 14-2n-23e. T.D. 1,795 ft.; cmtd. 8¼-in. on bttm.; R.U.S.T.
R. C. Tarrant No. 3 Sayre, SE NE SW sec. 26-3s-24e. Drlg. 372 ft.

UTAH

Daggett County

Mountain Fuel Supply Co. No. 3-B Murphy, NW NW SW sec. 23-3n-24e. R.U.R. to res. at 323 ft.

Grand County

Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22s-22e. T.D. 6,715 ft.
Columbia Crude Corp. No. 1 Rath, NW SW SE sec. 12-25s-20e. Drlg. 3,800 ft.
Cane Creek Oil Co. No. 1 Govt., NW SW sec. 31-26n-21e. S.D. 1,417 ft. to install control hd.; est. 3,000,000 ft. gas at 1,397 ft. and 1,414 ft.

Summit County

Longwell Pet. Co. No. 1, SE SW SE sec. 35-3n-5e. Drlg. 2,775 ft.

NEBRASKA

Lincoln County

Smith & Wright No. 1 Hansen, C SW NW sec. 24-15n-31w. Drlg. 3,030 ft.

Sioux County

Union Oil Co. of Calif. No. 1 Agate-15, NW SE SE sec. 15-28n-55w. Bldg. drk.; (cor. farm name).

NORTH DAKOTA

Williams County

California Co. No. 1 Kamp, C NW NE sec. 3-154n-96w. Resumed at 6,747 ft.

California Fields

(Continued from Page 97)

a depth of 3,175 feet and is coring oil sand and gray shale but does not expect to make a test above 3,500 feet unless a solid body of oil sand is logged.

In the Huntington Beach field, Standard Oil Co. recompleted No. 13-A Huntington Beach pumping 35 bbls. of 24.5-gravity oil cutting 8 per cent after redrilling and deepening the hole to 4,670 feet.

San Joaquin Basin

Two additional deep Avenal zone producers are expected to be completed in the Kettleman North Dome field within another two weeks as Standard Oil Co. No. 27-21-J in section 21-21-17 is going ahead in the pay at 10,903 feet. A recent formation test indicated the well was good for 650 bbls. per day from 10,893 feet and with the additional penetration production should be much larger. Kettleman North Dome Association is still testing No. 67-20-J in section 20-21-17 with present bottom at 10,546 feet. The Avenal zone, discovered by Kettleman North Dome Association as a result of deep drilling, is of Eocene age.

In the Mount Poso field, Ring Oil Co. completed No. 4 Bohen in section 32-27-28 pumping 142 bbls. of

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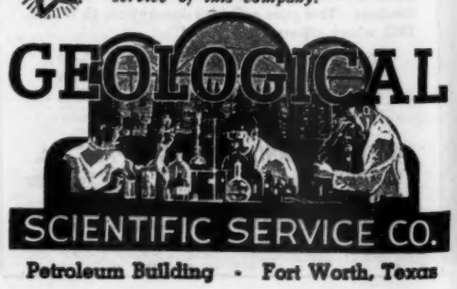

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15.7-gravity oil daily from 1,663 feet after finishing the hole with 63 feet of 6⅝-inch liner. Shell Oil Co. has abandoned No. 6 Mathews fee at 1,778 feet and has started a new well in its place. No. 6 Mathews fee drilled through a fault and found the Vedder zones barren. Top of the lower Vedder was cored at 1,735 feet. In the Midway-Sunset field, National Oil Co. completed No. 17 in section 35-32-23 pumping 235 bbls. of 15.2-gravity oil per day from 2,424 feet. The hole was finished with 1,177 feet of 8⅝-inch liner including 460 feet of 200-mesh landed at 2,422 feet.

Kern County

Shell Oil Co. completed in the Ten Section field of Kern County, No. 25-30-B Kern County Land in section 30-30-26, flowing 4,416 bbls. of clean 33.9-gravity oil and 3,600,000 feet of gas per day from 8,200 feet. It was finished with a 7-inch water string landed at 7,900 feet after having cored the top of the Stevens sand at 7,902 feet.

In the Greeley field, Standard Oil Co. has picked up the top of the productive oil zone in No. 11-14 Kern County Land in section 18-29-26 at 7,760 feet and should pass this well for production within another few days. No. 11-13 in section 20-29-26 tested wet after being plugged back from 7,780 feet to 7,760 feet and preparations are under way to replug.

Coastal District

Tide Water Associated Oil Co., in the Ventura Avenue field, completed No. 138 Lloyd, flowing 2,792 bbls. of 27.1-gravity oil and 3,078,000 feet of gas daily from 9,945 feet.

In the Rincon field, Chanslor Canfield Midway Oil Co. recompleted No. 20-B Hobson flowing 501 bbls. of 24.8-gravity oil and 400,000 feet of gas per day from 4,657 feet. This well was originally completed a few weeks ago but water broke in and necessitated a recement job. Present production is clean and flowing through a 32/64-inch bean, the tubing pressure is 240 pounds and the casing pressure 360 pounds.

In the Santa Maria Valley field, Sunshine Oil Co. has completed No. 3 Wallace flowing 1,050 bbls. of 16.3-gravity oil per day from 4,582 feet, and Bay City Oil Co. has completed No. 1 Munger flowing 490 bbls. of 15.8-gravity oil daily from 4,371 feet.

Kansas Fields

(Continued from Page 99)

Harvey County

Magnolia Petroleum Co. No. 6 Schmidt, NW SW NE section 30-22-3w, Hollow-Nikkel area, Harvey County, an old well, was deepened from 3,171 feet to 3,411 feet and recompleted. It pumped 29 bbls. of oil and 72 bbls. of water in 24 hours.

Woodson County

Woodson County Pipe Line Co. No. 10 Winterscheid, NW SW SE section 6-24-14, had Mississippi lime pay at 1,690-1,713 feet, total depth, and pumped 93 bbls. of oil in 24 hours.

Sinclair Prairie Oil Co. No. 14 McClaskey A, C E half SE SE section 30-23-14, topped Mississippi lime at 1,641 feet, total depth 1,682 feet, was acidized and pumped 25 bbls. of oil daily.

New activity in Woodson County: Oko Oil Co. No. 2 Headley, NE NW NW section 33-23-14, drilling below 350 feet; Woodson County Pipe Line Co. No. 11 Winterscheid, NW SW SE section 6-24-14, location; C. L. Sheedy and others No. 8 Tipton, NE SE NW section 28-25-14, drilling below 200 feet.

Sumner County

Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 1 Frambers, SW SW NW section 34-31-1w, Wellington area, Sumner County, was dry and abandoned at 3,808 feet, total depth.

Stevens County

Kuhn Brothers No. 2 Carpenter, C NW section 28-33-36w, Hugoton district, Stevens County, was bottomed at 2,820 feet, plugged back to 2,800 feet, acidized, and produced 9,446,000 feet of gas.

Cowley County

Arthur Brewer No. 2 Clark, SW SW NE section 6-31-4e, Clark pool, Cowley County, topped Mississippi lime at 2,902 feet and was dry and abandoned at 2,904 feet, total depth.

Same operator's No. 2 City of Winfield, NE NW SW section 15-30-4, Rock pool, was a rig.

Other New Operations

Derby Oil Co. No. 1 Wood, NE cor. section 36-22-5w, Buhler area, Reno County, was rigging up rotary.

L. E. Dean No. 1 Westhusin, C E half E half NE section 11-9-17w, Westhusin pool, Rooks County, was a cellar.

Continental Oil Co. and Cities Service Oil Co. No. 1 Clack, C E half E half SW section 10-9-21w, Morel area, Graham County, was a location.

Southwest Texas Fields

(Continued from Page 92)

Garcia, 1,997 feet, perforated casing 1,965-72½ feet, 110 bbls., ¼-inch choke. Daubert & Lipscomb No. 7-A Garcia, 2,441 feet, abandoned.

Travis County

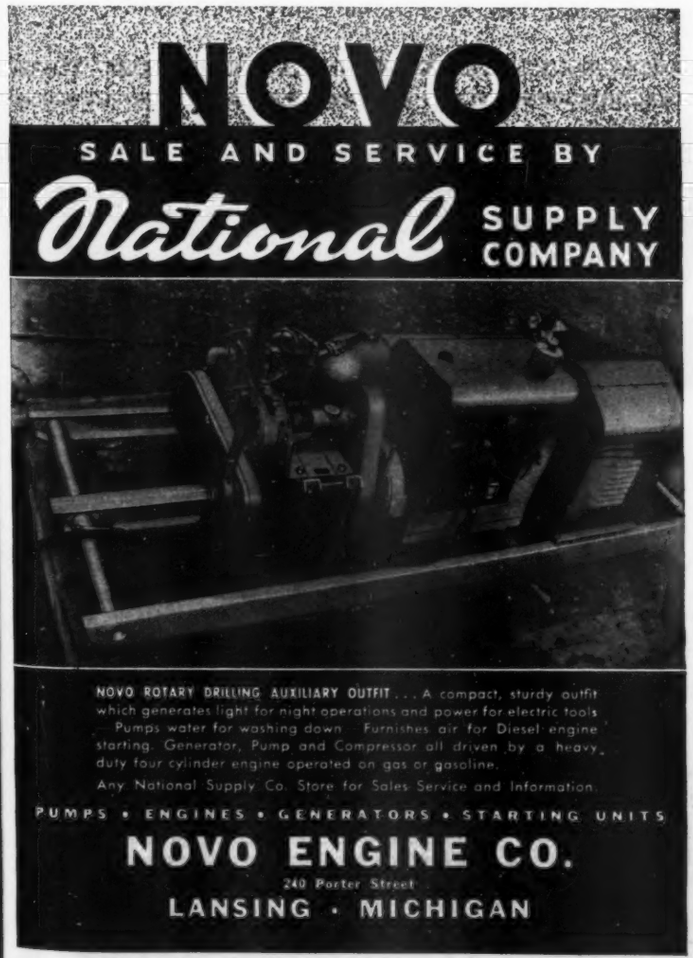
Manda field: Claude Smith No. 1 Morell, 1,100 feet, abandoned.

Zapata County

Mirando Valley field: Buffalo Oil Co. and others No. 1-A Hennant, 1,879 feet, 148 bbls, ¼-inch choke.

Victoria County

Heyser field: Blanco Oil Co. and others No. 9-C Dunwoody, 5,596 feet, perforated casing 5,488-96 feet, 92 bbls. 3/32-inch choke. George Echols No. 5 O. M. Lander, 5,750 feet, perforated casing 5,741-43 feet, 114 bbls., ⅛-inch choke. Portilla Drilling Co. No. 25-C P. H. Welder, 5,465 feet, perforated casing 5,461-64½ feet, 37 bbls. 6 hours, ⅞-inch choke. Sun Oil Co. No. 6 Coffey, 5,748 feet, perforated casing 5,745-47 feet, 117 bbls. 7/64-inch choke. Gulf Oil Corp. No. L. P. Schultz, 5,486 feet, perforated casing 5,475-78 feet, 81 bbls. 3/32-inch choke. Humble Oil & Refining Co. No. 21-B Welder, 5,587 feet, 15 bbls. per hour, ⅞-inch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choke. Sinclair-Prairie Oil Co. No. 12 W. H. Bennett 5,547 feet, 108 bbls. ¼-inch choke. McFaddin field: Transwestern Oil Co. No. 8-E McFaddin, 4,403 feet, 115 bbls. 5/32-inch choke.

West Texas Fields

(Continued from Page 86)

1,003-1,666 feet, 55 bbls. Two States Oil No. 2 Magnolia, 1,768-1,905 feet, 800,000 feet of gas.

Howard County

Iron Mountain Oil Co. No. 7 Snyder, 2,700-2,900 feet, 630 bbls. Magnolia Petroleum Co. No. 5 Hyman-Chalk, 2,775-2,988 feet, 1,092 bbls.

Runnels County

K.Z. Oil Co. No. 1 Fletcher, dry and abandoned at 4,384 feet.

Scurry County

E. L. Goss No. 1 J. E. Murphy, 1,730-1,834 feet, 10 bbls.

Upton County

W. M. Holland No. 1 Halff, dry and abandoned at 3,852 feet. A. W. Rutter and others No. 2 Cordova Union, dry and abandoned at 2,263 feet.

Ward County

Amerada Petroleum Co. No. 9 McDonald, 2,235-2,330 feet, 292 bbls. Gulf Oil Corp. No. 80 Estes, 2,549-2,660 feet, 1,567 bbls.; No. 87 Estes, 2,520-2,940 feet, 1,325 bbls.; No. 89 Estes, 2,575-2,640 feet, 2,581 bbls. Humble Oil & Refining Co. No. 34 Richter, 2,465-2,925 feet, 1,258 bbls. Pat Moran and Atlantic Refining Co. No. 2 Reynolds, dry and abandoned at 2,613 feet.

Winkler County

Amon G. Carter No. 1-E Walton, 3,333-95 feet, 106 bbls. Humble Oil & Refining Co. No. 13-B Colby, 2,765-3,025 feet, 271 bbls. Sinclair Prairie No. 7-B Vaden, 2,805-3,074 feet, 435 bbls. Stanolind-Westbrook No. 8 I. Hendricks, 2,915-3,087 feet, 54 bbls. W. H. Wilson and others No. 2-C Campbell, 3,100-3,364 feet, 99 bbls.

Yoakum County

Denver Producing & Refining Co. No. 7 Whitten-4,770-5,073 feet, 785 bbls. Toddie L. Wynne No. 2 Fairman, 4,855-5,070 feet, 218 bbls.

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Gray County

Cities Service No. 14 Culler, 3,147-3,311 feet, 403 bbls. Sinclair Prairie No. 5 Post, 3,195-3,298 feet, 115 bbls.

Carson County

Magnolia Petroleum Co. No. 38 fee, 2,890-2,908 feet, 173 bbls.

Hutchinson County

Drilling & Exploration Co. No. 16 Watkins, 2,905-50 feet, 518 bbls.; No. 5 Pond, 3,035-95 feet, 369 bbls. Magnolia Petroleum Co. No. 2 Southwestern O. & D., 3,086-3,122 feet, 178 bbls. Simpson Oil Co. No. 2 Harvey, 3,048-80 feet, 565 bbls. Stayton Oil Co. No. 7 Moore C, 3,125-75 feet, 425 bbls. Texas Co. No. 12 Pond, 3,015-70 feet, 544 bbls.

East Texas Fields

(Continued from Page 82)

Van Zandt County

In the Van field, Overton Refining Co. No. 2-A G. W. Carter, dry and abandoned at 2,942 feet.

NORTH TEXAS COMPLETIONS

Archer County

Collins & Evans No. 2 J. T. Longley, 852 feet, dry. Grove & Kelleher No. 9 S. E. Oldham A, 1,340-80 feet, 40 bbls. King & McCurdy No. 1 Mrs. R. C. Kirkland, 1,373 feet, dry. Westmount Oil Co. No. 4 F. Shropshire, 1,766-73 feet, 100 bbls.

Clay County

Bridwell Oil Co. No. 7 T. C. Thornberry, 1,069-77 feet, 225 bbls. Kimmell Lee & Co. No. 1 Mrs. L. Firestone, 366 feet, dry. Sussex Oil Corp. No. 12 C. J. Shumake, 1,139-60 feet, 25 bbls.

Cooke County

Bridwell Oil Co. No. 3 J. Flusche, 1,668 feet, dry. Kiel and others No. 3 J. J. Perkins, 1,150 feet, dry. Kingery Brothers and others No. 1 Robert Yosten, 787-837 feet, 10 bbls. F. W. Merrick, Inc., No. 4 J. H. Otto, 882-94 feet, 60 bbls. Pace Petroleum Co. No. 8 J. R. Winstead B, 1,187-94 feet, 280 bbls. A. D. Robinson No. 14 J. H. Otto A, 800-96 feet, 41 bbls. Texas Co. No. 6 T. Trubenbach, 750-75 feet, 98 bbls. Trumter Oil Co. No. 11 G. T. Andress, 756-82 feet, 135 bbls. Wallace and others No. 3 Winstead, 1,160-68 feet, 25 bbls.

Jack County

Cockburn Oil Co. No. 4 Mrs. S. A. Enlow, 3,225-45 feet, 180 bbls. R. D. Compton Oil Co. No. 1 J. M. Bloodworth, 350 feet, dry; No. 2 J. M. Bloodworth, 371 feet, dry. Danciger Oil & Refining Co. No. 4 Stella M. Denman, 3,013-3,106 feet, 416 bbls. Deka Oil Co. No. 1 C. C. Henderson, 347 feet, dry; No. 2 C. C. Henderson, 333-36 feet, 30 bbls. Hunter and others No. 1 M. Covington, 354-55 feet, 15 bbls. Howard Petroleum Co. No. 3 C. C. Henderson, 330-40 feet, 10 bbls. W. S. Randall No. 1 A. B. Kiykendall, 3,081-3,102 feet, 204 bbls.

Montague County

Continental Oil Co. No. 42 N. J. Howard, 1,725 feet, dry. Seitz & Comegys No. 2 J. B. Roach A, 2,115-24 feet, 75 bbls.

Continental, Seitz and others No. 13 Hott, 1,740-47 feet, 230 bbls. Lesh & McCall No. 1 J. S. Ivins, 2,514 feet, dry. Sinclair Prairie Oil Co. No. 24 D. T. Holt, 1,640-69 feet, 80 bbls.; No. 28 D. T. Holt, 1,752-85 feet, 125 bbls.

Wichita County

Consolidated Oil Co. No. 6 W. P. Ferguson, 3,694-3,801 feet, 4,250 bbls. Cullum Kelleher & Riner No. 1 J. A. Kemp, 3,722-3,893 feet, 800 bbls. Geier Bros., Inc., and Jackson No. 1 Sue Mitchell, 3,897-3,933 feet, 880 bbls. Hammon, Hanlon & Buchanan No. 3 Fassett & Tuttle, 3,896-3,866 feet, 565 bbls. G. W. Cooper and others No. 2 First National Co., 3,640-3,865 feet, 560 bbls. King Oil Co. and Perkins Cullum No. 6 Mrs. Anna Mangold, 3,670-3,803 feet, 1,150 bbls. Texas Co. No. 1 Union Central Life Insurance Co., 1,315 feet, dry.

Petroleum Producing Co. No. 90 First National Co., 3,677-3,877 feet, 1,100 bbls. George Proctor No. 28 Foster Allen A, 1,621-45 feet, 350 bbls. Rubsam & Hunter No. 21 W. C. McClure A, 95-110 feet, 2 bbls. Staley Oil Co. No. 3 W. P. Ferguson, 3,786-3,850 feet, 1,065 bbls.; No. 4 First National Co., 3,755-3,898 feet, 1,850 bbls. Sunray Oil Co. No. 1 A. W. Burnside, 3,780-4,030 feet, 650 bbls. Texas Co. No. 14 J. L. and T. J. Waggoner, 3,785-3,855 feet, 1,230 bbls. Sam K. Viersen No. 1 W. P. Ferguson, 3,794-3,834 feet, 1,100 bbls.

Bolin & Whittington No. 1 J. and J. Waggoner, 3,851-3,974 feet, 750 bbls. Bridwell Oil Co. No. 2 J. R. Pace, 3,635-3,875 feet, 945 bbls. P. Browning and others No. 3 G. W. Lewis, 3,662-3,746 feet, 800 bbls. Burk Royalty Co. No. 2 W. W. Overbey, 3,860-3,955 feet, 900 bbls. L. T. Burns No. 28 First National Co., 3,685-3,890 feet, 680 bbls. Burns & McCutchson No. 3 First National Co., 3,619-3,867 feet, 1,200 bbls. Chapman & McFarlin No. 2 Mrs. Anna Mangold, 3,773-3,884 feet, 1,000 bbls.; No. 2 J. and J. Waggoner, 3,781-3,823 feet, 1,200 bbls. Continental Oil Co. No. 20 J. and J. Waggoner, 1,720-34 feet, 87 bbls. G. W. Cooper No. 31 W. T. Waggoner C, 1,620-36 feet, 40 bbls. Cullum and others No. 2 J. A. Kemp Estate, 3,715-3,821 feet, 1,000 bbls.

Deep Oil Development Co. No. 1 J. A. Kemp Estate, 3,742-3,830 feet, 960 bbls.; No. 3 J. A. Kemp Estate, 3,751-3,842 feet, 640 bbls. Golding & Cochran No. 17 J. L. and T. J. Waggoner A, 3,784-3,847 feet, 544 bbls. Haberle & Thornton No. 1 J. R. Pace, 3,779-3,880 feet, 904 bbls.; No. 2 J. R. Pace 3,779-3,886 feet, 336 bbls. W. B. Hamilton No. 2 Sue Mitchell, 3,821-3,870 feet, 904 bbls. Jones & Hamner No. 1 T. F. Mitchell, 3,821-3,951 feet, 648 bbls. King Oil, Perkins & Cullum No. 3 W. P. Ferguson, 3,691-3,807 feet, 1,120 bbls. Lewis Producing Co. No. 8 Wichita National Bank, 3,715-3,835 feet, 792 bbls. Magnolia Petroleum Co. No. 1 Barton, 3,805-3,814 feet, 856 bbls.; No. 2 Barton, 3,768-3,843 feet, 880 bbls.; No. 3 Barton, 3,780-3,815 feet, 960 bbls.; No. 1 Sue Mitchell, 3,880-3,923 feet, 1,000 bbls.

George Proctor No. 29 Foster A, 1,950 feet, dry. Rathke Oil Co. No. 14 S. B. Burnett and others, 2,018 feet, dry. George B. Ray and others No. 2 Sue Mitchell, 3,825-3,877 feet, 1,025 bbls. W. H. Hammon No. 3 J. and J. Waggoner, 3,775-3,967 feet, 700 bbls. Sam K. Viersen No. 1 Nelson, 3,796-3,850 feet, 736 bbls. W.E. Production Co. No. 1 Church Site, 3,836-3,940 feet, 480 bbls. Wilson & Ligon No. 1 Sue Mitchell, 3,845-3,870 feet, 920 bbls. Wilson, Ligon & Burns No. 2 Munger Bros., 3,783-3,872 feet, 1,200 bbls.

Young County

E. E. Butler No. 1 H. E. Neeley, 1,147 feet, dry. Duncan Holt & Marchman No. 22 S. M. J. Benson A, 887-99 feet, 100 bbls. W. C. Green No. 1 W. T. Rogers, 985 feet, dry. T. D. Humphrey No. 2 J. J. Butler, 3,851-3,914 feet, 17 bbls. G. C. Gilmore No. 3 A. C. Speer, 651 feet, dry. E. Lennington No. 1 F. Harmon, 618 feet, dry. Lupton & McLester No. 3 Mellan Heirs, 3,740-4,170 feet, 35 bbls. A. H. Pander No. 1 B. F. Haygood, 1,003 feet, dry. Wise & Jackson No. 19 F. M. Cullers, 534-84 feet, 10 bbls. Collier & Conner No. 1 H. H. Ford, 3,076-3,111 feet, 103 bbls. D. L. Wolf No. 2 J. L. Castleman, 1,121 feet, dry.

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Central West

By STAFF CORRESPONDENT

Centralia's Late Wells Are Larger in New Production

CENTRALIA, Ill., Apr. 25.—The two pipe line companies serving the Centralia field in Clinton and Marion counties, the busiest spot in the Illinois oil fields, have cut their runs to 20 bbls. per day per well. The Owensboro Pipe Line Co., affiliated with the Standard Oil Co. of Ohio, announced on Wednesday that commencing that day it would take only 20 bbls. per well from its connections in Centralia. This company runs the greater part of the production from the pool. The Illinois Pipe Line Co. followed suit, announcing that effective April 21 at 7 a.m., it would take only 20 bbls. per well per day from its Centralia connections.

Initial production records were broken in the Centralia field the past week when John Pugh Drilling Co. completed a 525-bbl. producer on the Marion County side of the townsite of Centralia. It was one of several good wells on the townsite, the others starting at 250 bbls., 312 bbls., 210 bbls., 425 bbls., and 260 bbls. There were 13 Centralia completions in the course of the week and their total production of 2,844 bbls. averaged 268 bbls. per well.

Dry holes were reported in Shelby, Wayne and Perry counties.

Completed Wells

In Shelby County, Henshaw & Whisenant abandoned No. 1 Milo McKittrick, SE SE SE section 19-10n-4e. It had McClosky sand at 1,950-70 feet, with no showing of oil.

In Fayette County, Carter Oil Co. completed No. 2 Dove, C E half SE NW section 15-8n-3e. It was shot with 20 quarts in Benoist sand at 1,497½-1,512 feet, and pumped 77 bbls. the first day.

In Richland County, Pure Oil Co. No. 2 Pflaum, C N half NW NE section 5-3n-9e, found pay at 2,952-57½ feet and at 2,960-65 feet. It was acidized with 5,000 gallons and flowed 376 bbls. of oil initially. Pure Oil Co. No. 5 Hundley, C W half SW NE section 5-3n-9e, was acidized with 5,000 gallons at 2,956-67½ feet and flowed 355 bbls. of oil.

In Wayne County, Benedum-Trees, Inc., No. 1 Gloyd, C E half E half SE section 32-2n-7e, was abandoned as dry at 3,263 feet. Top of the Fredonia lime was at 3,158 feet. No McClosky lime was reported.

In Clinton County, Centralia field, Shell Petroleum Corp. No. 3 Pitchford, near SW cor. NW NE SW section 1-1n-1w, had Benoist sand at 1,323-49 feet, and started at 165 bbls. on the pump. Shell Petroleum Corp. and Gulf Petroleum Corp. No. 1 Criley-Buehler, SE SW NW section 1-1n-1w, had Benoist at 1,336-60 feet, which was shot with 10 quarts. It pumped 116 bbls. initially. Adams Oil & Gas Co. No. 2 Marshall, near CEL SE SE SW section 12-1n-1w, with sand at 1,371-89 feet, was shot with 20 quarts and pumped 58 bbls. of oil and 5 bbls. of water the first 24 hours. Penn Illinois Oil Co. No. 1 Langenfield and others, CEL E half SE section 12-1n-1w, had Benoist sand at 1,377-1,404 feet, and swabbed 250 bbls. initially. R. Blowers No. 1 Park Fairview, SE NW NE section 13-1n-1w, found sand at 1,345-87 feet. It was shot with 120 quarts and pumped 312 bbls. the first 24 hours. T. T. Eason and others No. 1 Home Building & Loan in NE SE NE section 13-1n-1w, had sand at 1,352-73 feet, which was shot with 10 quarts. The well pumped 116 bbls. the first 24 hours. Eason and others had to junk and abandon No. 1 Sailor, NE cor. NW SE NE section 13-1n-1w, after shooting sand at 1,355-60 feet. The casing hopelessly collapsed. H. & H. Drilling Co. No. 1 Remacle, SE cor. NW NE section 13-1n-1w, pumped 57 bbls. initially after a 15-quart shot at 1,364-72 feet. Kesl & Fox No. 3 Storer, NW cor. NE NE NE section 13-1n-1w, was shot with 15 quarts at 1,374-81 feet, and started at 210 bbls. a day on the pump. John Pugh Drilling Co. No. 1 Knipping, NE cor. SW NE SE section 13-1n-1w, shot sand at 1,368-78 feet with 10 quarts and it responded with a production of 425 bbls. a day on the pump. John Pugh Drilling Co. No. 1 Wheeler, SE SE NE section 13-1n-1w, had Benoist sand at 1,353-80 feet. It was shot with 20 quarts and made a 120-bbl. well on the pump. Selegna Oil Corp. No. 1 Rena Condit and others, near NW cor. SW SE NE section 13-1n-1w, pumped 360 bbls. the first 24 hours after a 20-quart shot at 1,367-86 feet.

In the Marion County side of the Centralia field, J. D. Reynolds and others No. 1 Holman, near SW cor. NW NW section 18-1n-1e, had Benoist sand at 1,348-81 feet and pumped 145 bbls. a day without a shot. John Pugh Drilling Co. No. 1 Fleischman and others test in NW cor. SW NW SW section 18-1n-1e, made the largest production of any well so far in the Centralia field. It pumped 510 bbls. in 24 hours after a 10-quart shot at 1,360-70 feet.

In Jefferson County, Carter Oil Co. No. 1 Inez Cobb, C W half NW SW section 10-1s-2e, had Benoist sand at 1,957-71 feet. It was shot with 30 quarts and pumped 61 bbls. the first day.

In Perry County, Amerada Petroleum Corp. abandoned No. 1 Pyramid Coal Co., NW NE NW section 10-6s-3w, at 1,643 feet. It had dry Benoist sand at 1,415-45 feet and topped Fredonia lime at 1,595 feet.

In the Centralia Field

In the Clinton County side of the Centralia field, Shell Petroleum Corp. No. 1 Lippert, SW SE NW section 1-1n-1w, shut down for machine at 72 feet; Shell Petroleum Corp. No. 1 Geary-Criley, SE NE NE section 2-1n-1w, swabbed 27 bbls. of oil with 6 bbls. of water in 18 hours from Benoist sand; Adams Oil & Gas Co. No. 1 Keister, 280 feet from south and 330 feet from east lines of section 2-1n-1w, drilling at 450 feet; Shell Petroleum Corp. No. 1 Kreft, NE NE SE section 11-1n-1w, drilling at 472 feet; Adams Oil & Gas Co. No. 2 Baker, SE cor. SW SE SE section 12-1n-1w, spudded; Shell Petroleum Corp. No. 1 Allison, NE SW NE section 12-1n-1w, Benoist sand at 1,359-90 feet, swabbed 41 bbls. of oil and 5 bbls. of water in 12 hours, still testing; Shell Petroleum Corp. No. 2 Allison, SW NW SE section 12-1n-1w, drilling at 877 feet; Shell Petroleum Corp. No. 4 Allison, NE cor. SE SW NE section 12-1n-1w, drilling at 590 feet. Bonnie Oil & Gas Co. No. 2 Williams, SE cor. SW NE SE section 12-1n-1w, rig up; Louis Lilly and others No. 2 Penn estate, NW cor. NE SE SE section 12-1n-1w, drilling at 520 feet; Blankenship and others No. 3 Roth, NW cor. NE SW SE section 12-1n-1w, drilling at 600 feet. Thompson & Hutchins No. 1 St. Clair Foundry, NE cor. SE section 12-1n-1w, running pipe, Benoist sand at 1,382-1,400 feet; Evans & Johnson No. 1 Budde, SE cor. NE SE section 13-1n-1w, location; Kesl & Fox No. 5 Storer, NE cor. NW NE NE section 13-1n-1w, location; Huff, Stouffler and others No. 1 Besant, SE cor. NE SE section 13-1n-1w, spudded; Bailey & Lucas No. 1 Kuhn, NW cor. NE SE SE section 13-1n-1w, spudded; Bell, Riley and Lacey No. 1 Budde, near CEL SW NE SE section 13-1n-1w, derrick; John Pugh Drilling Co. No. 1 Schnoke, near CWL SW NE SE section 13-1n-1w, rig up.

Marion County, Centralia field, T. T. Eason and others No. 1 Mayer, SE cor. SW SW NW section 18-1n-1e, rigging up rotary; Hawley and others No. 1 Storer, SW SW NW section 18-1n-1e, rigging up machine; John Pugh Drilling Co. No. 1 Haley infirmary, near CEL NW SW NW section 18-1n-1e, location; J. SW cor. NW SW SW section 7-1n-1e, rig up.

D. Reynolds and others No. 1 Haugh, near CEL SW SW section 7-1n-1e, drilling at 250 feet; Cooper & Lacey No. 1 Pick, SE cor. SW SW SW section 7-1n-1e, drilling at 450 feet; Muhlbach & Pray No. 1 Gentilini,

Wildcat Operations

Clark County: Stipes and others No. 1 Wilhoit, SW NE NW section 30-12n-13w (measuring from Indiana principal meridian), lowering 10-inch pipe to 91 feet.

Macoupin County: American Petroleum Corp. No. 2 Snedeker Brothers, 810 feet from north and 60 feet from east lines of SW quarter section 15-8n-8w, spudded.

Fayette County: Sam Jarvis No. 1 Mize, 55 feet from north and 1,265 feet from east lines of NE section 21-8n-3e, material on ground. Carter Oil Co. No. 1 Durbin, NW SW SW section 28-8n-3e, location; Carter Oil Co. No. 1 Nellie Wetmore, NW SW NW section 11-8n-3e, Benoist sand at 1,586-1,601 feet, saturated. Shot with 10 quarts; cleaning out.

Crawford County: Warren Hastings and others No. 1 Athey, C N half NE NE section 18-8n-12w (Indiana principal meridian), moving in material.

Marion County: Wheelock & Brian No. 1 Nattier heirs, SE cor. NE SE SE section 29-4n-1e, drilling at 600 feet.

Clay County: Carter Oil Co. No. 1 Cox, SE SE SW section 14-4n-5e (corrected location), rebuilding derrick.

Richland County: Pure Oil Co. No. 1 Schilling, C S half NE SE section 32-4n-9e, drilling at 900 feet.

Clay County: Kingwood Oil Co. No. 1 Brissenden, C S half SW NW section 8-3n-7e, drilling at 1,420 feet.

Richland County: Pure Oil Co. No. 2 Mitchell, C N half NE NW section 5-3n-9e, rig up. Pure Oil Co. No. 10 Coen, C W half NE NW section 9-3n-9e, apparently dry at 3,000 feet and shut down. McClosky sand at 2,933-35 feet and 2,938-48 feet, swabbed dry.

Clinton County: W. C. McBride, Inc., No. 1 Ed Carson, SW NE SE section 35-2n-1w, rigging up standard tools; Bartelso Oil & Gas Co. No. 5 Schlorman, NE cor. SE SW section 5-1n-3w, rigging up standard tools; F. Heidt No. 1 John Lampin, SW SE NW section 16-1n-2w, a wildcat, moving in material.

Washington County: Frost & Vickers No. 1 Bugielin, SW SW NW section 12-1s-1w, location.

Jefferson County: Carter Oil Co. No. 1 Cunningham, C W half SW SE section 3-1s-2e, Benoist sand at 1,973-88 feet, total depth, running casing; Carter No. 1 Dobbs, C E half NE NW section 10-1s-2e, Benoist sand at 1,968-83 feet, total depth, shot with 15 quarts, cleaning out; Carter No. 1 Breeze, NE NE NE section 16-1s-2e, location; Carter No. 2 Cobb, C W half SW SW section 10-1s-2e, location.

Wayne County: Texas Co. No. 1 Heaton, C W half NE SE section 17-3s-7e, drilling at 2,245 feet.

Williamson County: Gelo Oil Syndicate No. 1 Scott, SW cor. SE SW section 4-10s-2e, location. Operators are Herrin, Ill., business men.

Menard County: Johnson No. 1 fee, C SW SW section 24-19n-5w, lime at 1,550-58 feet, with a showing of oil. Pipe set at 1,480 feet, and lime will be acidized.

Montgomery County: Meyers and others No. 1 Klekamp, NE cor. SE SW SE section 29-8n-5w, Mississippi lime at 730 feet, drilling at 731 feet with pipe set on top of the lime.

Richland County Outposts

Richland County: Ohio Oil Co. No. 1 Schilling, C S half SE SE section 32-4n-9e, pay at 2,946-52 feet and 2,956-68½ feet, swabbing; Roberts, Weiss & Delaney No. 1 Johnson, SE SE NW section 29-4n-9e, McClosky sand at 3,093-97½ feet with a small showing of oil, drilling below 3,109 feet with no showing; Pyramid Petroleum Co. No. 1 University of Chicago, SE cor. NW NW NW section 26-4n-10e, cored at 2,960-77 feet, recovered 11 feet of bleeding dolomite and oolitic lime and 5 feet of lime with no saturation, coring ahead; Pure Oil Co. No. 1 Mitchell, C S half NE NW section 5-3n-9e, fishing for bit, total depth 3,120 feet; Mammoth Producing & Refining Co. No. 1 Stewart, SE SE SW section 21-3n-9e, drilling at 2,998 feet; American National Drilling Co. No. 1 Everson, NE NE SE section 23-3n-9e, coring at 3,104 feet probably in Fredonia lime; M. A. B. Oil Co. No. 1 Allison

NW cor. NE NE NE section 29-3n-9e, drilling at 2,495 feet.

Lawrence County: Edward Geick No. 1 Guthridge, SE NW NW section 29-3n-12w (Indiana principal meridian), pay at 1,919-36 feet, shot with 10 quarts, cleaning out, with 40 feet of oil in the hole.

Edwards County: Leach Brothers No. 1 Lee, SW NE SE section 11-1s-10e, drilling iron at 3,160 feet.

Washington County: Bitterman and others may abandon their No. 1 Jesse, in C SE NE section 16-3s-2w, which has drilling tools and fishing tools in the hole, total depth 1,426 feet.

Jefferson County: Myers Brothers No. 1 Duckworth, C E half SW NE section 33-4s-4e, rig up.

Franklin County: Washburn Petroleum Co. No. 1 Neal, C E half SE SE section 6-5s-4e, shut down at 3,030 feet.

Saline County: C. F. Bolton and others No. 1 Beagle, NW cor. NE section 13-9s-7e, shut down for repairs, total depth 2,142 feet.

Pope County: Whitlock and others No. 1 Anthis, NE NW NE section 12-11s-5e, Fredonia lime at 1,630 feet, fishing for bailer at 1,745 feet.

CENTRAL OHIO

FINDLAY, Ohio, Apr. 25.—In Central Ohio, Knox County yielded the only oil completion of the week. In Jackson Township, Pure Oil Co. No. 3 Don A. Miller, section 10, made 80 bbls. the first 24 hours after a shot in Clinton sand at 3,072-3,117 feet.

Eight gas wells and four dry holes make up the balance of the completions. In Athens County, Carthage Township, Shade River Oil & Gas Co. No. 14 F. W. Chapman, Fraction 19, was drilled to 1,070 feet and abandoned.

In Fairfield County, Pleasant Township, City Natural Gas Works No. 1 L. J. Hite, section 4, made 7,000 feet of gas from Clinton sand at 2,098 feet.

In Lorain County, Avon Township, Ohio Fuel Gas Co. No 1 Farm Land Foundation, section 28, is good for 2,300,000 feet of gas from Clinton sand at 2,392-2,404 feet. In Avon Township, William J. Dempsey No. 2 Casper Wuebker, section 27, was drilled to 2,455 feet and abandoned. No Clinton sand was found. In Carlisle Township, W. J. Dempsey No. 1 Beebe Heirs section 8, had 25,000 feet of gas from the Clinton sand at 2,312 feet.

In Muskingum County, Brush Creek Township, Sutton Bros. No. 4 Charles Enoch, section 3, had 633,000 feet of gas from Clinton sand at 3,952-99 feet. In Rich Hill Township, the wildcat test of the Atha Realty Co. on the Robert H. Moorehead tract was drilled to 5,000 feet and abandoned. All formations were dry.

In Morgan County, Marion Township, Fairmont Oil & Gas Co. No. 1 C. C. Mosier, section 11, found the Salt sand dry at 880-920 feet.

In Monroe County, Franklin Township, Lumbatis and others No. 1 L. W. Carpenter, section 8, started at 60,000 feet of gas per day from Berea sand at 1,802-09 feet. In Jackson Township, Jims Run Oil & Gas Co. No. 1 H. C. Bradfield, section 35, is good for 180,000 feet of gas per day from third Salt sand at 1,420 feet.

In Stark County, Jackson Township, East Ohio Gas Co. No. 2 Society of Precious Blood, section 27, is a 243,000-foot gasser in the Clinton sand at 4,377-89 feet.

In Tuscarawas County, Franklin Township, East Ohio Gas Co. No. 1 Josephine Fernsell, section 19, was dry and abandoned at 4,432 feet.

In Washington County, Liberty Township, Baker & Daly No. 2 Albert Pryor, section 22, had 260,000 feet of gas per day from the Maxon sand at 1,265 feet.

Lima Field

In Hancock County, Allen Township, Sun Oil Co. No. 1 J. B. Heimhofer, section 32, was drilled to a total depth of 1,875 feet. The Green sand was dry at 1,848-49 feet and the St. Peter formation was topped at 1,850 feet and produced a heavy flow of salt water. The operators are attempting to plug off the water and save the gas encountered in the Trenton rock at 1,180 feet.

In Seneca County, Clinton Township, A. J. West No. 2 A. M. Clouse, section 7, made 70 bbls. of oil the first 24 hours after shot from Green sand and has now settled to about a 35-bbl. producer.

WESTERN KENTUCKY

OWENSBORO, Ky., April 25.—Four oil wells, 1 gas well, and 5 dry holes were completed in the Western Kentucky fields in the past week. Better road conditions were in part responsible for a considerable increase in new drilling. The completions included the following wells:

Bryant & Moorman No. 3 Marcus Whittier, Glen Dean district, Breckenridge County, 180,000-foot gas well in Bethel sand at 338-75 feet.

Rex Pyramid Oil Co. No. 1 Yeiser, Red Hill district, Daviess County, a 3-bbl. well, producing naturally, which will be used as a pressure well. Cumberland Petroleum Co. No. 9 Isabel Salmon, Cane Run School district, Daviess County, a 3-bbl. well, producing naturally, which will be made a pressure well. Hall & Booth No. 2 Martin, Hewlett's store district, Daviess County, an 8-bbl. well in Barlow sand at 1,034-53 feet, which had been shot with 50 quarts. In the same district S. J. Serman No. 2 Joe Johnson was dry and abandoned at 1,270 feet.

McDonough & Co. No. 1 Ada Frank, Pellville district, Hancock County, was dry and abandoned in Jett sand.

Cumberland Petroleum Co. and others No. 1 Ed Conrad, Semiway district, McLean County, was dry and abandoned at 510 feet, and in the Island district, South Penn Oil Co. No. 4 Kirtley was dry and abandoned after plugging back to 1,427 feet and shooting Jett sand.

In the Friendship Church district, Ohio County, A. Teller and others No. 14 Whitehouse started at 20 bbls. a day from Barlow sand at total depth 828 feet, but Henry Scholl and others No. 5 Ida Farmer, was a dry hole, abandoned at 425 feet.

EASTERN KENTUCKY

ASHLAND, Ky., Apr. 25.—The best new well of the week in the Eastern Kentucky fields was a 20-bbl. producer, Petroleum Exploration Co. No. 19 Pryce Heirs, Ida Lay district, Lee County. Kentucky West Virginia Gas Co. completed a 15-bbl. well in No. 5236, C. W. Preece land, Coldwater Fork, Martin County. Fleiger Oil Co. No. 1 Andrew Combs, Billies Fork, Lee County, was good for 5 bbls. the first 24 hours. These were the only completions reported during the week.

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Apr. 23.—On the west flank of South Turner Valley, Brown Oil Corp. No. 4, LSD 4, section 21-18-2w5, finished at 6,721 feet after getting the Madison limestone at 6,253 feet, cleared by heads, and has been placed on steady production. The potential is 913 bbls. a day before acidization, which will take place in about three weeks. Production is meanwhile prorated at 383 bbls.

In section 29-18-2w5, Davies Petroleums No. 1, LSD 2, finished at 7,375 feet after getting the Madison at 6,898 feet, used a small acid treatment to clear a bridge, freeing the tubing and allowing the well to clear itself. It started flowing at an estimated rate of 1,500 bbls. a day. Later it was fully acidized and looks like a big producer. Location is in the outer line of west flank wells and about three-quarters of a mile south of Commoil No. 1, the largest producer in the field.

In the same section, Sunburst Oil Co. No. 1, N half LSD 1, completed by British Trans-Canada Oils, Ltd., showed potential of 589 bbls. on a three-day government test, and is producing temporarily at 450 bbls. a day. Gas flow was 1,850,000 feet a day. It will be given a further acid treatment.

In section 28-18-2w5, Richland Royalties No. 2, LSD 5, is on steady production after flowing by heads, but is a small well and will be acidized. In section 20-18-2w5, Spy Hill Royalties No. 1, LSD 16, is flowing by heads, after shooting and acidizing.

Commoil Increases Production

On the new potential test by Alberta government officials, Commoil No. 1, LSD 15, section 29-18-2w5, increased its potential from 2,998 to 3,040 bbls. The government tests covering all South Turner Valley crude producers have been completed, and detailed figures of the new potentials will be issued shortly. Commoil No. 1 in March produced approximately 39,000 bbls. under 42 per cent proration.

Tests in the Lime

In section 32-18-2w5, West Turner Petroleums No. 1, LSD 2, was finished at 7,274 feet after getting the Madison limestone at 6,832 feet. It cleared itself under heavy gas pressure, and has been placed on the separator with indications of a natural flush production close to that of Commoil No. 1 before acidization. The well, offsetting Commoil No. 1 immediately to the north and the West Flank wells to the west, was completed by Royalite Oil Co. on the basis of a 55 per cent participation in production.

In the south end of the crude area, National Petroleum Corp. No. 2, LSD 14, section 9-18-2w5, is below 7,120 feet after getting the Madison limestone at 7,070 feet. Location is about a mile south of the nearest producer.

North Turner Valley

In North Turner Valley, Royalite Oil Co. No. 29 Turner Basin, LSD 7, section 27-20-3w5, finished at 6,920 feet after drilling 645 feet in the Madison, was further acidized in the upper lime. It developed a flush production estimated as high as 2,200 bbls. a day, settling to 800 bbls. potential on the three-day official test, prorated at 336 bbls. Gas flow was estimated at 2,000,000 feet a day.

Completion of Royalite No. 29 as a large crude producer definitely proves a second west flank crude area approximately 13 miles northwest of the original crude area on the west flank of South Turner Valley. Apart from Royalite No. 29, the only crude producer in the north area is Model Oils No. 1, LSD 8, section 22-20-3w5, which in 1930 developed a crude production around 150 bbls. a day from the upper lime. Model Oils, Ltd., holds 400 acres of section 22-20-3w5, immediately south of Royalite No. 29, and is arranging to drill this acreage. Model No. 3, LSD 1, with 12 bbls. naphtha production per day, has been treated with 10,000 gallons of acid to develop gas for drilling operations. It is expected that Model No. 1 crude producer will be deepened in the lime, and new drilling undertaken, as soon as the outfit from Model-Reward-Spooner No. 2 in South Turner Valley is available.

In North Turner Valley, Home-Millarville No. 1, LSD 8, section 33-20-3w5, started at the Belly River-Benton contact and was drilled to 7,600 feet without reaching the Madison limestone. A survey by a directional surveying instrument showed the hole to have drifted about 2,560 feet northeast. It was plugged and abandoned and Home-Millarville No. 2 has since been started in LSD 6, same section, 2,100 feet west and 250 feet north of No. 1. Newell & Chandler are handling the contract at a set figure, with the lime expected between 6,000 and 7,000 feet. The Home company has also contributed $25,000 for the completion of Phillips Royalties No. 1 to be repaid from a 25 per cent gross royalty on production with a 10 per cent net continuing royalty. The Home company holds 10,120 acres in Townships 20 and 21, extending northwest-southeast for 13¼ miles, and in line with any potential west flank crude development in North Turner Valley.

Another subsidiary, Home Oil (Brazeau), Ltd., acquired possession of prospecting permits covering approximately 64,500 acres in the Brazeau district west of Edmonton, later exchanged for 63,494 acres of leases. The acreage lies between the Blackstone and Pembina rivers, northwest of Nordegg, and covers practically the entire structure. No. 1 Brazeau, located on Chungo Creek, started drilling in the Lower Benton and is now well advanced after encountering small gas shows in the upper 500 feet. In addition to aerial and ground surveys, the company had to build 28 miles of road to reach its location. Dr. J. O. G. Sanderson is geologist for the company.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location and county—	S.T.R.	Depth	Status
Wilshire Oil, No. 1 Gaviota, Santa Barbara	35- 5-33	3,075	fish D.P.
Ohio Oil, No. 1 Morrison, Santa Maria, Santa Barbara	27-10-34	3,197	sd. sh. drlg.
Hancock-Bush, No. 2 Bradley, Santa Maria, S. Barb.	26-10-34	4,164	sd. sh. drlg.
Getty, George, Inc., No. 4 Vicente, Santa Barbara	27-10-34	2,297	sd. sh. drlg.
Bankline Oil, No. 1 Silva, Santa Maria, Santa Barbara	7- 9-33	1,143	sd. sh. drlg.
Hanoli Oil No. 1 Holser, Santa Maria, Santa Barbara	27-10-34	4,470	sd. sh. drlg.
Cal. Lands, Inc., No. 4 Gallison, Santa Maria, S. Barb.	26-10-34	4,820	sd. sh. drlg.
Cal. Lands, Inc., No. 1 MacDonnell, S. Maria, S. Barb.	28-10-34	4,830	sd. sh. drlg.
Signal Oil, No. 1 Yelkin, Santa Maria, Santa Barbara	26-10-34	3,498	sd. sh. drlg.
Union Oil, No. 1 Stinson, Santa Maria, Santa Barbara	28-10-34	5,128	sd. sh. drlg.
Union Oil, No. 3 LeRoy, Santa Maria, Santa Barbara	24-10-35	4,160	sd. sh. drlg.
Union Oil, No. 3 Bradley, Santa Maria, Santa Barbara	25-10-34	2,480	sd. sh. drlg.
Valoco Oil, No. 1 Boyd, Santa Maria, Santa Barbara	28-10-34	2,010	dry; abd.
Wilson Oil, No. 1-B, Santa Maria, Santa Barbara	26-10-34	5,100	sd. sh. drlg.
Sunshine Oil, No. 3-W, Santa Maria, Santa Barbara	27-10-34	4,570	sd. sh. drlg.
Bay City Oil, No. 1-M, Santa Maria, Santa Barbara	27-10-34	4,371	flow 420 b.d.
Jones, F. E., No. 2 Wisconsin, Santa Maria, S. Barb.	27-10-34	2,597	sd. sh. drlg.
Standard Oil, No. 1 Cat Canyon, Santa Barbara	27- 9-33	5,529	redrlg. 5,392
Petrol Corp., No. 21 Tognazzini, Gato Ridge, S. Barb.	9- 8-32	1,998	sd. sh. drlg.
United West. Oil, No. 1 Los Olivos, Santa Barbara	16- 7-30	2,990	hd. sd.
Carpinteria Oil, No. 1 Carpinteria, Santa Barbara	32- 4-25	2,192	br. sh. drlg.
High Mesa Oil, No. 1 Butcher, Ojai, Ventura	16- 4-22	1,377	hd. sh. drlg.
St. Louis Oil, No. 1 Pirie, Ojai, Ventura	18- 4-22	2,711	Cleaning out
Rowe, W. G., No. 1 Johnson, Oxnard, Ventura	15- 1-22	4,115	fish D.P.
Texas Co., No. 5 Yale, South Mountain, Ventura	13- 3-21	3,862	sd. sh. drlg.
Texas Co., No. 1 Edwards, Camarillo, Ventura	19- 2-21	6,111	dry; abd.
Merchants Pet., No. 1 Sespe, Ventura	1- 4-20	183	sd. sh. drlg.
Continental Oil, No. 1 Elkins, Hopper Canyon, Ven.	23- 4-19	1,138	hd. sh. drlg.
C. C. M. Oil No. 19 Hobson, Rincon, Ventura	17- 3-24	4,242	P.B. 4,111
C. C. M. Oil, No. 20 Hobson, Rincon, Ventura	8- 3-24	4,713	P.B. 4,657
C. C. M. Oil, No. 22 Hobson, Rincon, Ventura	17- 3-24	4,129	O.S. drlg.
Richfield Oil, No. 6 Hobson, Rincon, Ventura	17- 3-24	2,580	cmtd. 2,548
Tide Water A. O., No. 19 V.L.W., Ventura, Ventura	26- 3-23	8,302	hd. sd. drlg.
Tide Water A. O., No. 31 V.L.W., Ventura, Ventura	26- 3-23	6,921	well deeper
Tide Water A. O., No. 68 Lloyd, Ventura, Ventura	27- 3-23	4,345	sd. sh. drlg.
Tide Water A. O., No. 75 Lloyd, Ventura, Ventura	27- 3-23	1,198	sd. sh. drlg.
Tide Water A. O., No. 76 Lloyd, Ventura, Ventura	27- 3-23	2,181	sd. sh. drlg.
Tide Water A. O., No. 127 Lloyd, Ventura, Ventura	27- 3-23	1,872	sd. sh. drlg.
Tide Water A. O., No. 138 Lloyd, Ventura, Ventura	23- 3-23	9,945	flow 2,798 b.d.
Tide Water A. O., No. 18 Hartman, Ventura, Ventura	22- 3-23	10,885	flow 2,007 b.d.
Tide Water A. O., No. 11 McGonigle, Ventura, Ventura	23- 3-23	4,263	sd. sh. drlg.
Shell Oil, No. 94 Taylor, Ventura Ave., Ventura	20- 3-23	7,802	O.S. drlg.
Shell Oil, No. 31 Edison, Ventura Ave., Ventura	20- 3-23	3,674	sd. sh. drlg.
Shell Oil, No. 37 Gosnell, Ventura Ave., Ventura	28- 3-23	5,680	sd. sh. drlg.
General Pet., No. 13 Notten, Ventura Ave., Ventura	28- 3-23	9,871	P.B. 9,080
Lloyd Corp., No. 1 Dabney-Lloyd, Vent. Ave., Ventura	24- 3-23	2,481	sd. sh. drlg.
Amerada Pet., No. 5 Beer, Devils Den, Kern	22-26-19	7,756	gr. sd. drlg.
Gibson Oil, No. 3 Alferitz, Devils Den, Kern	14-25-18	246	sd. sh. drlg.
Par-Mer Oil, No. 1 McKittrick, Kern	6-31-22	3,050	idle
Chico-Martinez Oil, No. 1 Holly, S. Belridge, Kern	1-29-20	437	sd. sh. drlg.
Ohio Oil, No. 1 Ford, South Belridge, Kern	6-29-22	6,098	br. sh. drlg.
Tide Water A. O., No. 10-B Williamson, L. Hills, Kern	11-26-20	1,327	pump 20 b.d.
Belridge Oil, No. 27-5 North Belridge, Kern	27-27-20	4,697	br. sh. drlg.
Belridge Oil, No. 27-6 North Belridge, Kern	27-27-20	7,298	br. sh. drlg.
Belridge Oil, No. 35-26 North Belridge, Kern	35-27-20	6,482	br. sh. drlg.
Tide Water A. O., No. 3-21 North Belridge, Kern	21-27-20	4,158	br. sh. drlg.
Richfield Oil, No. 2 North Belridge, Kern	22-27-20	5,161	br. sh. drlg.
Texas Co., No. 3 Martin, North Belridge, Kern	22-27-20	7,992	sd. sh. drlg.
Texas Co., No. 4 Martin, North Belridge, Kern	22-27-20	3,974	br. sh. drlg.
General Pet., No. 1 St. Helens, Belridge, Kern	12-28-20	8,685	fish D.P.
Coast Expl., No. 1 Coffee, Round Mountain, Kern	6-28-29	1,979	rig to pump
Shell Oil, No. 1-J Coffee, Round Mountain, Kern	30-27-29	1,079	sd. sh. drlg.
Pan-May Oil, No. 1 Coffee, Round Mountain, Kern	31-27-29	674	hd. sd. drlg.
McDonald, H. A., No. 3 Larkin, Round Mount., Kern	12-28-28	1,391	sd. sh. drlg.
Kern Oil, No. 25-1-C Kern Front, Kern	25-28-27	2,007	cleaning out
Rubenstein, A. B., No. 1 Lerdo, Kern	20-28-27	3,302	pump water
Spencer Pet., No. 4 Lerdo, Kern	10-28-27	2,200	P.B. 2,175
Helm & Smith No. 3-A Kernco, Kern River, Kern	34- 2-28	314	sd. sh. drlg.
W. T. W. Pet., No. 1 Packard, Mount Poso, Kern	14- 7-28	1,375	dry; abd.
W. T. W. Pet., No. 2 Packard, Mount Poso, Kern	14-27-28	1,259	gr. sd. drlg.
Carter, J. P., No. 2 S.P.L. Mount Poso, Kern	3-27-28	1,473	cleaning out
Shell Oil, No. 6 Mathews, Mount Poso, Kern	4-27-28	1,793	dry; abd.
Shell Oil, No. 6-A Matthews, Mount Poso, Kern	4-27-28	1,604	sd. sh. drlg.
Seaboard Oil, No. 1 Glide, Mount Poso, Kern	7-27-28	1,498	sd. sh. drlg.
Framac Oil, No. 3 Brown, Mount Poso, Kern	22-27-27	1,351	cleaning out
Reynolds Oil, No. 1 Premier, Mount Poso, Kern	30-27-27	2,850	P.B. 2,790
Master Pet., No. 3 Recovery, Mount Poso, Kern	33-26-28	1,192	sd. sh. drlg.
Ring Oil, No. 4 Bohen, Mount Poso, Kern	32-26-28	1,663	sd. sh. drlg.
Ring Oil, No. 4 Shapiro, Mount Poso, Kern	32- 8-28	197	sd. sh. drlg.
Western Gulf Oil, No. 34 KCL, Fruitvale, Kern	14-29-27	3,043	flow 440 b.d.
Wilbur, V. R., No. 1 Fruitvale, Kern	22-29-27	4,181	P.B. 3,960
Pacific Oil & Gas, No. 2 Guisti, Fruitvale, Kern	14-29-27	2,997	pump 117 b.d.
Wood Callahan Oil, No. 21-2 Edison, Kern	21-30-29	3,675	P.B. 3,145
Union Oil, No. 1 Berry, Arvin, Kern	15-31-29	6,812	P.B. 5,767
Petrex, Inc., No. 1 Arvin, Kern	32-31-30	3,648	cleaning out
Superior Oil, No. 2 Wagner, Rio Bravo, Kern	35-28-25	11,449	flow 1,255 b.d.
Superior Oil, No. 3 Wagner, Rio Bravo, Kern	35-28-25	9,780	sd. sh. drlg.
Superior Oil, No. 1 Anderson, Rio Bravo, Kern	35-28-25	3,497	sd. sh. drlg.
Superior Oil, No. 1 Ruhl, Rio Bravo, Kern	1-29-25	11,500	flow 1,625 b.d.
Union Oil, No. 2-34 KCL, Rio Bravo, Kern	34-28-25	11,204	fish tubing
Getty Oil, No. 1 Ramsey, Rio Bravo, Kern	35-28-25	10,990	sd. sh. drlg.
General Pet., No. 1 Wagoner, Rio Bravo, Kern	35-28-25	10,192	fish D.P.
General Pet., No. 2 Wagoner, Rio Bravo, Kern	35-28-25	8,860	sd. sh. drlg.
Standard Oil, No. 18-1 KCL, Una, Kern	29-28-26	7,260	sd. sh. drlg.
Dilmar Oil, No. 1 Quinn, Jasmin, Kern	15-25-27	2,956	P. B. 2,875
Amerada Pet., No. 1 Core Hole, Jasmin, Kern	2-25-27	1,961	dry; abd.
Amerada Pet., No. 2 Core Hole, Jasmin, Kern	35-24-27	672	sd. sh. drlg.
Standard Oil, No. 11-2 KCL, Greeley, Kern	20-29-26	11,150	gr. sh. drlg.
Standard Oil, No. 11-13 KCL, Greeley, Kern	20-29-26	7,780	P.B. 7,760
Standard Oil, No. 11-14 KCL, Greeley, Kern	18-29-26	7,830	sd. sh. drlg.
Standard Oil, No. 1 Ross, Greeley, Kern	20-29-26	7,680	sd. sh. drlg.
Continental Oil, No. 1-E KCL, Stevens, Kern	17-30-26	5,864	sd. sh. drlg.
Shell Oil, No. 41-29-A KCL, Ten Section, Kern	29-30-26	8,220	sd. sh. drlg.
Shell Oil, No. 34-30-A KCL, Ten Section, Kern	30-30-26	6,760	sd. sh. drlg.
Shell Oil, No. 25-30-B KCL, Ten Section, Kern	30-30-26	8,200	flow 4,416 b.d.
Shell Oil, No. 21-32-B KCL, Ten Section, Kern Co	32-30-26	5,198	sd. sh. drlg.
Shell Oil, No. 81-14-A KCL, Canal, Kern	14-30-25	7,995	sd. sd. drlg.
Shell Oil, No. 2-13-A KCL, Canal, Kern	13-30-25	8,391	P.B. 8,331
Ohio Oil, No. 6-E KCL, Canal, Kern	14-30-25	2,941	sd. sh. drlg.
Ohio Oil, No. 8-A KCL, Buena Vista Lake, Kern	32-31-26	9,850	sd. sh. drlg.
National Oil, No. 17 Midway-Sunset, Kern	35-32-23	2,424	pump 315 b.d.
Whittier, M. H., No. 16 Hondo, Midway-Sunset, Kern	15-31-22	1,286	P.B. 1,182
Texas Co., No. 1 Pioneer, Midway-Sunset, Kern	33-11-23	8,250	br. sh. drlg.
Texas Co., No. 31 Midway-Sunset, Kern	32-32-24	3,295	sd. sh. drlg.
Salling Oil, No. 9 Midway-Sunset, Kern	2-11-24	962	sd. sh. drlg.
Abbott, F E., No. 12 Lewis, Sunset, Kern	20-11-23	3,481	sd. sh. drlg.
Universal Cons'd, No. 1 Tejon, Kern	33-11-19	4,553	pump 55 b.d.
Hall-Baker, No. 1, Comanche Point, Kern	35-32-29	565	sd. sh. drlg.
Shell Oil, No. 4-26 GCL, San Emidio, Kern	26-11-22	8,530	sd. sh. drlg.
Richfield Oil, No. 1 KCL, Wheeler Ridge, Kern	28-11-20	1,965	gr. sd. drlg.
Pure Oil, No. 1 SPL, Cantua, Fresno	31-18-18	10,862	fish D.P.
Gauthier, J., No. 2 Hubbard, Panoche Creek, Fresno	12-14-11	635	fish D.P.
Pet. Sec., No. 2 Gatchell, Jacalitos, Fresno	18-20-16	6,878	cmtd. 6,700
Dauphin Dev., No. 1 Alcalde, Fresno	30-21-14	3,778	redrlg. 1,397
Shell Oil, No. 35-1 Coalinga, Fresno	36-19-14	960	bail water
K. N. D. A., No. 67-20-J Kettleman North, Fresno	20-21-17	10,546	O.S. drlg.
K. N. D. A., No. 72-4-P Kettleman North, Fresno	4-22-17	8,450	cleaning out
K. N. D. A., No. 6-8-Q Kettleman North, Kings	6-22-18	7,475	gr. sd. drlg.
K. N. D. A., No. 38-8-Q Kettleman North, Kings	8-22-18	7,372	gr. sd. drlg.
K. N. D. A., No. 27-16-Q Kettleman North, Kings	16-22-18	5,390	sd. sh. drlg.
K. N. D. A., No. 58-16-Q Kettleman North, Kings	16-22-18	5,500	reaming
K. N. D. A., No. 47-18-Q Kettleman North, Kings	18-22-18	7,590	gr. sd. drlg.
K. N. D. A., No. 43-20-Q Kettleman North, Kings	20-22-18	6,097	br. sh. drlg.
Standard Oil, No. 46-13-H Kettleman North, Fresno	13-21-16	9,597	redrlg. 9,520
Standard Oil, No. 27-21-J Kettleman North, Fresno	21-21-17	10,903	O.S. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St. sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting for cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.O.N.G., water shutoff no good.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

Standard Oil, No. 58-33-J Kettleman North, Fresno.. 33-21-17 7,450 gr. sd. drlg.
Standard Oil, No. 2-11-P Kettleman North, Kings.... 11-22-17 8,085 gr. sd. drlg.
Standard Oil, No. 78-1-P Kettleman North, Kings.... 1-22-17 4,980 sd. sh. drlg.
Standard Oil, No. 87-1-P Kettleman North, Kings.... 1-22-17 7,883 gr. sd. drlg.
Standard Oil, No. 21-13-P Kettleman North, Kings... 13-22-17 7,248 redrlg. 5,290
Standard Oil, No. 41-7-Q Kettleman North, Kings.... 7-22-18 8,325 gr. sd. drlg.
Standard Oil, No. 74-7-Q Kettleman North, Kings.... 7-22-18 5,860 sd. sh. drlg.
Standard Oil, No. 85-7-Q Kettleman North, Kings.... 7-22-18 7,190 br. sh. drlg.
Bandini Pet., No. 5 Whepley, Kettleman No., Fresno 35-21-17 9,515 redrlg. 9,270
Magnet Oil, No. 1 Glaze, Pixley, Tulare..... 15-22-26 3,281 dry; abd.
Wilshire Oil, No. 1 Cowell, Half Moon Bay, San Mateo 20- 6- 5 8,030 P.B. 2,525
Standard Oil, No. 1 Anderson, Rio Vista, Solano..... 1- 3- 2 2,002 sd. sh. drlg.
Richfield Oil, No. 1 Potrero Hills, Solano..... 10- 4- 1 1,174 sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location and county—	S.T.R.	Depth	Status
Basin Oil, No. 1 Potrero, Los Angeles	34- 2-14	2,398	sd. sh. drlg.
Ohio Oil, No. 12 Gough, El Segundo, Los Angeles	7- 3-14	3,970	sd. sh. drlg.
Termo Co., No. 2 El Segundo, Los Angeles	12- 3-15	7,400	cleaning out
D. & B. Oil, No. 1 Lomita, Los Angeles	30- 4-13	1,996	sd. sh. drlg.
Patton, C. B., No. 1 Meacham, Torrance, Los Angeles	15- 4-14	4,977	cleaning out
Patton, C. B., No. 2 Nell, Torrance, Los Angeles....	14- 4-14	5,016	pump 110 b.d.
McCaslin, W. E., No. 1 Whitney, Torrance, L. Angeles	23- 4-14	3,723	fish casing
Torrance Oil, No. 1 Grubb, Torrance, Los Angeles...	14- 4-14	4,975	sd. sh. drlg.
Sol Oil, No. 1 Torrance, Torrance, Los Angeles.....	23- 4-14	3,825	idle
Andrews & Mitchell, No. 5 Kirk, Torrance, L. Angeles	23- 4-14	5,105	sd. sh. drlg.
Anderson, N. H., No. 2 Torrance, Los Angeles.....	14- 4-14	5,051	P.B. 4,964
McDonald & Burns, No. 3 Moore, Torrance, L. Ang.	23- 4-14	5,039	sd. sh. drlg.
Emerald Oil, No. 1 fee, Torrance, Los Angeles.....	23- 4-14	5,120	cleaning out
Camp, C. W., No. 12 Torrance, Los Angeles.....	23- 4-14	4,290	sd. sh. drlg.
Doyle Pet., No. 1 Bond, Torrance, Los Angeles.....	23- 4-14	5,098	pump water
Doyle Pet., No. 3-4 Getty, Torrance, Los Angeles....	14- 4-14	3,870	sd. sh. drlg.
Elyod Oil, No. 1 Post, Torrance, Los Angeles.....	14- 4-14	4,998	sd. sh. drlg.
Peso Oil, No. 1 Marcoux, Torrance, Los Angeles.....	23- 4-14	5,014	sd. sh. drlg.
Kelly, F. C., No. 1 Huyck, Torrance, Los Angeles....	14- 4-14	5,005	pump 270 b.d.
Marel Oil, No. 1 Leaver Torrance, Los Angeles.....	14- 4-14	5,025	sd. sh. drlg.
Woolner Oil, No. 1 Torrance, Los Angeles.....	14- 4-14	5,017	sd. sh. drlg.
Krause & Baker, No. 2 Gladys, Torrance, Los Angles	14- 4-14	3,795	rigged up
Peters Royalty, No. 1 Torrance, Los Angeles.....	14- 4-14	3,986	sd. sh. drlg.
Sierra Dev., No. 2 Weiller, Torrance, Los Angeles..	23- 4-14	5,017	flow 190 b.d.
Texas Co., No. 5 Redondo, Torrance, Los Angeles...	15- 4-14	3,628	bailing
Wilson, R. K., No. 1 Cook, Torrance, Los Angles.....	14- 4-14	3,770	redrlg. 3,590
Standard Oil, No. 1 Martin, Torrance, Los Angeles..	15- 4-14	4,675	sd. sh. drlg.
Superior Oil, No. 6 Torrance, Los Angeles.....	16- 4-14	4,981	sd. sh. drlg.
Imperial Gypsum, No. 1 DeWitt, Torrance, L. Angles	14- 4-14	3,750	redrlg. 3,685
Imperial Gypsum, No. 2 Getty, Torrance, Los Angeles	14- 4-14	3,785	rigged up
Lakeside Oil, No. 2 Cook, Torrance, Los Angeles.....	14- 4-14	4,998	fish packer
C. C. M. O., No. 14 Torrance, Los Angeles.....	14- 4-14	5,020	pumps 180 b.d.
C. C. M. O., No. 23 Torrance, Los Angeles.....	14- 4-14	4,290	sd. sh. drlg.
Fisher, N., No. 1 Washburn, Torrance, Los Angeles..	23- 4-14	5,147	cleaning out
Berken Oil, No. 1 Star, Torrance, Los Angeles.....	16- 4-14	3,758	cleaning out
Sheil Oil, No. 94 Reyes, Dominguez, Los Angeles....	33- 3-13	6,870	sd. sh. drlg.
Union Oil, No. 58 Callender, Dominguez, Los Angeles	33- 3-13	7,594	redrlg. 7,570
Union Oil, No. 59 Callender, Dominguez, Los Angeles	33- 3-13	6,826	sd. sh. drlg.
Union Oil, No. 60 Callender, Dominguez, Los Angeles	33 -3-13	7,650	sd. sh. drlg.
Union Oil, No. 8 Carson, Dominguez, Los Angeles....	33- 3-13	7,405	will deepen
Barnsdall Oil, No. 20 O'Dea, Rosecrans, Los Angeles	18- 3-13	7,835	flow 1,140 b.d.
Barnsdall Oil, No. 3 Trust, Rosecrans, Los Angeles..	18- 3-13	2,050	sd. sh. drlg.
Union Oil, No. 19-Rosecrans, Rosecrans, Los Angeles	18- 3-13	6,071	sd. sh. drlg.
Universal Cons'd., No. 3 Trust, Rosecrans, L. Angeles	18- 3-13	1,987	sd. sh. drlg.
Howard Oil, No. 1 Gordon, Rosecrans, Los Angeles..	19- 3-13	6,596	cleaning out
H. B. Oil, No. 1 Stephens, Rosecrans, Los Angeles...	18- 3-13	6,033	repair rig
Barnsdall Oil, No. 3 S.F., Newhall, Los Angeles.....	26- 4-17	3,591	sd. sh. drlg.
West Coast Dev., No. 2 Broughton, Newhall, L. Ang.	27- 4-16	2,384	sd. sh. drlg.
General Pet., No. 38 Ford, Wilmington, Los Angeles..	4- 5-13	3,000	sd. sh. drlg.
General Pet., No. 39 Ford, Wilmington, Los Angeles..	4- 5-13	4,101	fish tubing
General Pet., No. 3 Harbor, Wilmington, Los Angeles	2- 5-13	2,941	flow 410 b.d.
General Pet., No. 10 Harbor, Wilmington, L. Angeles	2- 5-13	3,900	flow 1,265 b.d.
General Pet., No. 11 Harbor, Wilmington, L. Angeles	2- 5-13	3,920	O.S. drlg.
General Pet., No. 14 Harbor, Wilmington, L. Angeles	2- 5-13	2,540	sd. sh. drlg.
General Pet., No. 6-S.P., Wilmington, Los Angeles..	2- 5-13	4,075	O.S. drlg.
Banklin Oil, No. 6-U.P., Wilmington, Los Angeles...	2- 5-13	3,901	flow 2,950 b.d.
Bankline Oil, No. 18 D.H.C., Wilmington, Los Angeles	34- 4-13	2,361	sd. sh. drlg.
Baker Oil, No. 1 Wilmington, Los Angeles.....	35- 4-13	3,078	cmtd. 3,077
Caleb Pet., No. 1 F.H., Wilmington, Los Angeles....	32- 4-13	2,990	pipe bad
Dunlap Oil, No. 12 Wilmington, Los Angeles.....	2- 5-13	2,942	sd. sh. drlg.
Hogan Pet., No. 1 Graham, Wilmington, Los Angeles	2- 5-13	4,199	flow 195 b.d.
Hogan Pet., No. 2 Graham, Wilmington, Los Angeles	2- 5-13	411	sd. sh. drlg.
Hancock Oil, No. 14-A Wilmington, Los Angeles.....	3- 5-13	3,565	O.S. drlg.
Hancock Oil, No. 9-B Wilmington, Los Angeles....	2- 5-13	4,084	flow 2,500 b.d.
Hancock Oil, No. 11-B Wilmington, Los Angeles....	2- 5-13	2,280	sd. sh. drlg.
Hancock Oil, No. 8-F Wilmington, Los Angeles.....	2- 5-13	4,014	flow 3,520 b.d.
Michelin, Jas., No. 1 Com., Wilmington, Los Angeles	33- 4-13	3,000	flow 460 b.d.
Richfield Oil, No. 1-G Wilmington, Los Angeles....	2- 5-13	6,078	P.B. 3,006
Richfield Oil, No. 2-P.D., Wilmington, Los Angeles..	2- 5-13	2,560	sd. sh. drlg.
Richfield Oil, No. 3-P.D., Wilmington, Los Angeles..	2- 5-13	2,651	sd. sh. drlg.
Richfield Oil, No. 6-P.D., Wilmington, Los Angeles..	2- 5-13	1,864	sd. sh. drlg.
Richfield Oil, No. 26-P.D., Wilmington, Los Angeles..	2- 5-13	2,640	sd. sh. drlg.
Richfield Oil, No. 3-R.O., Wilmington, Los Angeles..	2- 5-13	398	sd. sh. drlg.
Richfield Oil, No. 1-P.G., Wilmington, Los Angeles..	2- 5-13	3,440	O.S. drlg.
Richfield Oil, No. 4-P.G., Wilmington, Los Angeles..	2- 5-13	4,315	O.S. drlg.
Selegna Prod., No. 11 Wilmington, Los Angeles....	33- 4-13	3,200	flow 260 b.d.
Silvergate Oil, No. 1 Wilmington, Los Angeles.....	32- 4-13	2,618	sd. sh. drlg.
Superior Oil, No. 2 Seaside, Wilmington, Los Angeles	2- 5-13	2,917	flow 415 b.d.
Superior Oil, No. 4-B Seaside, Wilmington, L. Angeles	4- 5-13	2,921	flow 420 b.d.
Superior Oil, No. 17 B.B., Wilmington, Los Angeles..	2- 5-13	3,056	flow 361 b.d.
Texas Co., No. 3 Ref., Wilmington, Los Angeles....	34- 4-13	3,445	sd. sh. drlg.
Termo Co., No. 3-D Wilmington, Los Angeles.....	3- 5-13	2,598	sd. sh. drlg.
Termo Co., No. 4-D Wilmington, Los Angeles.....	3- 5-13	2,350	sd. sh. drlg.
Universal Cons'd., No. 5 Newport, Wilmingt'n, L. Ang.	2- 5-13	516	sd. sh. drlg.
Union Pacific R.R., No. 73 Wilmington, Los Angeles	34- 4-13	2,155	sd. sh. drlg.
Union Pacific R.R., No. 81 Wilmington, Los Angeles	4- 5-13	2,831	O.S. drlg.
Union Pacific R.R., No. 83 Wilmington, Los Angeles	3- 5-13	3,933	flow 3,840 b.d.
Union Pacific R.R., No. 3-E Wilmington, Los Angeles	3- 5-13	3,920	O.S. drlg.
Union Pacific R.R., No. 4-E Wilmington, Los Angeles	3- 5-13	3,140	O.S. drlg.
Union Pacific R.R., No. 5-E Wilmington, Los Angeles	3- 5-13	3,449	O.S. drlg.
Pioneer Petrol, No. 1 Irvine, Wilmington, Los Angeles	26- 4-13	4,170	sd. sh. drlg.
Johnston Drlg., No. 1 Pico, Montebello, Los Angeles..	5- 2-11	5,084	sd. sh. drlg.
St. Helens Pet., No. 24-M Montebello, Los Angeles..	2- 2-12	5,781	flow 2,950 b.d.
St. Helens Pet., No. 25-M Montebello, Los Angeles..	2- 2-12	5,480	sd. sh. drlg.
St. Helens Pet., No. 26-M Montebello, Los Angeles...	2- 2-12	4,591	sd. sh. drlg.
Union Oil, No. 1 Paul Howard, Montebello, L. Ang.	2- 2-12	6,244	sd. sh. drlg.
Union Oil, No. 1 Wilcox, Montebello, Los Angeles...	2- 2-12	5,291	sd. sh. drlg.
Standard Oil, No. 1 Harvey, Montebello, Los Angeles	2- 2-12	3,685	cleaning out
McVicar & Rood, No. 1 Manz, Montebello, Los Angeles	2- 2-12	4,890	sd. sh. drlg.
Brookline Oil, No. 1 Drake, Montebello, Los Angeles	2- 2-12	1,998	sd. sh. drlg.
Brit. American Oil, No. 1 Pico, Los Angeles.....	12- 2-12	3,990	cleaning out
Monte Cristo Oil, No. 1 Monterey Park, Los Angeles..	27- 1-12	4,240	will deepen
Fullerton Oil, No. 5 Whittier, Los Angeles.....	25- 2-11	2,325	P.B. 1,530
Colorado Oil, No. 19 Whittier, Los Angeles.....	22- 2-11	1,130	sd. sh. drlg.
Hilldon Oil, No. 1 Poole, North Long Beach, L. Ang.	13- 4-13	4,001	O.S. drlg.
Hilldon Oil, No. 2 Poole, North Long Beach, L. Ang.	13- 4-13	2,984	sd. sh. drlg.
Signal Oil, No. 1 P.E., North Long Beach, L. Angeles	13- 4-13	3,470	sd. sh. drlg.
Johnston Drlg., No. 33 Long Beach, Los Angeles....	13- 4-13	1,954	sd. sh. drlg.
Caminol Co., No. 1-8 Dominguez, Flood Control, L. A.	14- 4-13	4,503	sd. sh. drlg.
Kramildon Oil, No. 1 Long Beach, Los Angeles.....	13- 4-13	5,760	deepening
Marvell Oil, No. 1 Long Beach, Los Angeles.....	19- 4-12	4,148	idle
Dunlap Oil, No. 13 Long Beach, Los Angeles.....	30- 4-12	3,991	sd. sh. drlg.
Texas Co., No. 1 Wilson, Long Beach, Los Angeles...	29- 4-12	1,372	sd. sh. drlg.
Shell Oil, No. 44 Alamitos, Long Beach, Los Angeles..	28- 4-12	4,198	sd. sh. drlg.
Richfield Oil, No. 5-B Long Beach, Los Angeles.....	13- 4-13	2,140	sd. sh. drlg.
Standard Oil, No. 13-A Huntington, Los Angeles....	36- 5-11	4,670	pump 35 b.d.
W. P. R. Oil, No. 3 Huntington, Orange.....	35- 3-11	7,410	P.B. 6,643
Brea Canyon Oil, No. 48 Brea Canyon, Orange.....	2- 3-10	2,700	sd. sh. drlg.
Standard Oil, No. 2 Bastanchury, W. Coyote, Orange	21- 3-10	5,860	sd. sh. drlg.
Standard Oil, No. 65 Emery, West Coyote, Orange...	24- 3-11	3,992	hd. sd. drlg.
Standard Oil, No. 66 Emery, West Coyote, Orange....	24- 3-11	3,471	sd. sh. drlg.
Standard Oil, No. 2-12 Coyote, East Coyote, Orange..	22- 3-10	4,350	sd. sh. drlg.
Bartholomae Oil, No. 6 Sterns, East Coyote, Orange..	22- 3-10	4,857	O.S. drlg.
Millerand Pet., No. 1 Miller, Yorba, Orange.....	22- 3- 9	765	sd. sh. drlg.
Oliver & Owen, No. 1 Anderson, Yorba, Orange.....	22- 3- 9	1,363	cleaning out
Beverly Hills Pet., No. 1 Fricke, Yorba, Orange.....	21- 3- 9	1,914	idle
Burmah Oil, No. 1 Sloan, Yorba, Orange.....	21- 3- 9	2,380	P.B. 2,350
Kelmar Oil, No. 1 Yorba, Orange.....	21- 3- 9	1,998	sd. sh. drlg.
Hancock Oil, No. 1 Day, Yorba, Orange.....	21- 3- 9	1,432	sd. sh. drlg.
Congress Oil, No. 1-K, Santa Ana Canyon, Orange....	36- 3- 9	3,014	sd. sh. drlg.

KANSAS

Week Ending April 23 (Descriptions are East unless marked otherwise)

Barton County

Crown Oil Co. No. 1 Schartz, NW sec. 7-20-11w. T.D. 3,352 ft.; pot. 473 B.O.; comp.

R. E. Day et al No. 1 Felts, SE SE NE sec. 14-16-12w. S.D. 1,875 ft.

Gear and Atlantic Ref. Co. No. 1 Sullivan, NE SE SW sec. 29-17-13w. T.D. 3,360 ft.; R.U.S.T.

Murfin et al No. No. 1 Rexroot, NW SE sec. 14-17-13w. Drlg. 2,715 ft.

Price et al No. 1 Wondra, NW NE sec. 10-17-13w. T.D. 3,343 ft.; P.B. 3,342 ft.; bailing.

Sinclair Prairie Oil Co. No. 1 Frederick, SW SW SE sec. 16-16-11w. Arb. 3,322 ft.; T.D. 3,346 ft.; set 5-in. csg. 3,322 ft.; acd.; swb. 60 B.O. and 78 B.W. in 11 hrs.

Butler County

T. S. Dustin No. 1 Miley, SE NW NE sec. 17-27-5e. Drlg. 1,050 ft.

Saco Oil Co. et al No. 1 Pettit, SW NW SW sec. 21-28-6. Drlg. 2,735 ft.

Chase County

T. D. Duffy No. 1 Leedy, NE NW NW sec. 26-22-9e. C.O. 1,850 ft.

Cowley County

Bess & Gralapp et al No. 1 Hunt, CNL NE NW sec. 18-34-5e. Drlg. 2,682 ft.

Palmer Oil Corp. No. 1 Houser, SE NW SW sec. 13-30-3e. Drlg. 1,735 ft.

Smith et al No. 1 Wilson, SE SW NW sec. 9-33-6. Drlg. 1,726 ft.

Earl Wakefield No. 1 White, NW NE sec. 4-33-4e. T.D. 3,220 ft.; bad hole.

Dickinson County

Fred Franks et al No. 1 Huffman, NW NW sec. 11-13-1e. Drlg. 100 ft.

Ellis County

Carter Oil Co. No. 1 Foster, SE NW sec. 1-15-16w. T.D. 3,449 ft.; (cor.); reset-ting 4½-in.

Duwe & Farris No. 1 Hadley, SE NE SE sec. 12-11-18w. Drlg. 3,279 ft.

Ellsworth County

Ralph Wixson et al No. 1 Peterman, SW cor. sec. 28-17-10w. T.D. 3,306 ft.; P.B. 3,300 ft.; acd.; p. 167 B.O. and 62 B. W.; reacidized.

Finney County

Atlantic Ref. Co. No. 1 Nunn, C SE NE sec. 27-21-34w. Whipstock 1,820 ft.: drlg. 2,200 ft.

Ford County

Sinclair Prairie Oil Co. No. 1 Young, CSL NE sec. 34-27-21w. Drlg. 3,790 ft

Graham County

Continental Oil Co. and Cities Service Oil Co. No. 1 Morel, C W½ E½ NE sec. 15-9-21w. T.D. 3,720 ft.; pot. 2,105 B.O.; comp.

Greenwood County

Stanolind Oil Co. No. 1 Depew, NW SE sec. 13-25-12w. Drlg. 1,712 ft.

C. C. Whitaker et al No. 1 Bressner, NW SE sec. 8-26-13e. Set 6-in. csg. 1,-182 ft.

Harper County

Franklin Drlg. Co. No. 1 Waits, NE SW sec. 24-34-6w. T.D. 5,197½ ft.; D.&A.

Jackson County

Haverback et al No. 1 Marble Bank, C NE NE sec. 26-9-14. Drlg. 1,260 ft.

Jewell County

Hollingsworth Bros. No. 1 Wolfe, NE SW SE sec. 14-4s-8w. S.D. 100 ft.

Kearny County

Tri-County Gas Co. No. 1 Campbell, NE SE NE sec. 19-25-35w. Drlg. 1,730 ft.

Lane County

Phillips Pet. Co. No. 1 Kees, C SE SE sec. 3-19-30w. T.D. 4,911 ft.; lost circ.

McPherson County

Darrah et al No. 1 Decker, SW SW SE sec. 12-21-2w. Arb. 3,557-61½ ft., T.D.; P.B. 2,980 ft.; W.O.C.

Meade County

Barnett et al No. 1 Adams, NW SE sec. 22-34-30w. S.D. 69 ft.

Ness County

Schoeppel & Elmore No. 1 Moses, C SW NW sec. 10-18-25w. T.D. 500 ft.; R.U. R.

Trojan O. & G. Co. No. 1 Page Milling Co., SE SE NW sec. 36-18-26w. S.D. 3,-270 ft.

Pratt County

Atlantic Ref. Co. No. 1 Rice, NW NE NW sec. 11-28-15w. Drlg. 2,710 ft.

Reno County

Carey et al No. 1 McPheeters, NE NW sec. 22-26-8w. Drlg. 3,910 ft.

McCole et al No. 1 Mathews, SW NW NW sec. 15-24-10w. Fsg. 3,895 ft.

Rice County

Marylyn Oil Co. et al No. 1 Vincent, NW NW NE sec. 5-21-10w. Drlg. 545 ft.

Price et al No. 1 Gemeinhardt, NE SE sec. 18-18-10w. T.D. 3,305 ft.; P.B. 3,-298 ft.; pmpd. 15 B.O. and 25% wtr. daily.

Rooks County

Carter Oil Co. No. 1 Leist, SW cor. sec. 10-8-17w. Drlg. 3,315 ft.

Graham et al No. 1 Fike, SW cor. sec. 9-9-17w. S.D. 3,384 ft.

Producers Oil Co. No. 1 Ham, SW SW NW sec. 25-7-19w. Drlg. 588 ft.

Russell County

Central Pet. Co. No. 1 Furthmeyer, SE sec. 22-14-15w. Drlg. 1,845 ft.

Lauck & Moncrief No. 1 Miller, NE NW NW sec. 29-13-14w. T.D. 3,378 ft.; P.B. 3,090 ft.; drlg. to 3,080 ft.; 1,000 ft. W.I.H.

S. L. Parks No. 1 Gorham, SW SW NE sec. 19-15-15w. H.F.W. 3,347-52 ft., T. D.; to P.B.

Phillips Pet. Co. No. 1 Miller, C NW SW sec. 29-13-14w. Set 10-in. csg. 20 ft.; R.U.R.

Smith & Unruh No. 1 Stielow, NW cor. sec. 32-11-14w. Drlg. 2,500 ft.

Sedgwick County

Frank Hudson et al No. 1 Fulton, NE SE sec. 35-28-1e. S.D. 1,738 ft.

Union O. & R. Co. et al No. 1 Howell, SW cor. sec. 6-29-1e. Drlg. 2,680 ft.

Stafford County

Cardinal Oil Co. et al No. 1 Fischer, SW NW SW sec. 31-21-12w. Drlg. 3,605 ft.

Continental Oil Co. et al No. 1 Fair, CNL SW sec. 12-25-13w. T.D. 4,163 ft.; pot. 853 B.O.; comp.

Continental Oil Co. and Phillips Pet. Co. No. 1 Curtis, SE cor. sec. 26-24-13w. T.D. 4,191 ft.; D.&A.

Clyde Knight et al No. 1 McNickel, SE NE sec. 2-24-11w. T.D. 3,947 ft.; D.&A.

National Ref. Co. No. 1 Bonham, SW SE sec. 28-25-12w. T.D. 4,213 ft.; acd.; pmpd. pot. 330 B.O.; comp.

Stanolind O. & G. Co. No. 1 Carille, NE SE SW sec. 22-25-12w. Drlg. 3,193 ft.

Sumner County

Hapenny et al No. 1 Evers, SE SE NE sec. 27-31-2e. O.W.D.D.; drlg. 1,900 ft.

Murphy et al No. 1 Tate, SE NW sec. 31-32-2e. S.D. 900 ft.

Saco Oil Co. et al No. 1 Phipps, SW SE NE sec. 24-30-1w. Drlg. 3,421 ft.

Shawver and Pryor & Lockhart et al

No. 1 McKowen, SW cor. sec. 18-32-1w. T.D. 3,779 ft.; D.&A.

Woodson County

Kilby et al No. 1 Skellenger, NE SE sec. 25-23-14. Spd.

Wad McGinnis No. 1 State Bank, NW NE NE sec. 14-26-15. S.D. 1,150 ft.

Petty et al No. 1 Tipton, NW NE sec. 31-25-14. Set 6-in. 1,510 ft.; T.D. 1,565 ft.

OKLAHOMA

Week Ending April 23

NORTHERN OKLAHOMA

Beckham County

Mid-American Oil Co. No. 1-A Biscoe, SW cor. sec. 28-8-22w. Drlg. 2,750 ft.

Cleveland County

W. A. Delaney et al No. 1 Bugher, SE SE SW sec. 12-7-2w. Drlg. 7,015 ft.

Cimarron County

Barnsdall Oil Co. No. 1 School Ld., C NW SE sec. 35-5-5ecm. R.U.R.

Comanche County

Clyde Roach No. 1-A Green, SE SE SW sec. 2-1n-13w. T.D. 670 ft.; S.D.

Creek County

M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. T.D. 3,018 ft.; 2,000 ft. W.I.H. and S.S.O.; S.D.

Garfield County

J. E. Kendall et al No. 1-A State, SW cor. sec. 13-23-3w. Spd.

Garvin County

B. C. D. Edwards No. 1 Clark, NE cor. sec. 16-3n-3e. T.D. 2,676 ft.; P.B. 1,913 ft.; perf.; p. 15 B.O. and 15 B.W. in 24 hrs.; comp.

First Natl. Oil Co. No. 1 Butterly, NE NE SE sec. 22-1n-1e. T.D. 95 ft.; S.D.

Grady County

Gulf Oil Corp. No. 1 Thomas, SW NW NW sec. 14-4-5w. T.D. 11,415 ft.; pipe stuck.

Greer County

J. H. Everitt No. 1 Graumann, NE NW NW sec. 11-5-21w. T.D. 550 ft.; S.D.

R. W. McDonald No. 1 Fite, SE SE sec. 34-7-21w. T.D. 1,114 ft.; H.F.W.; S.D.

Hughes County

Amerada Pet. Corp. and Stanolind O. & G. Co. No. 1 Preame, NW NW SE sec. 29-9-9. T.D. 4,268 ft.; P.B. 3,354 ft.; flwd. 64 B.O. and 13 B.W. in 24 hrs.; comp.

Homer Doup et al No. 1 Bank, NE NE NW sec. 7-7-9. Drlg. 890 ft.

E. H. Moore et al No. 1 Hunter, NE NE NW sec. 30-4-9. Drlg. 5,790 ft.

Phillaine Oil Co. No. 1 Morrison, SE SE SW sec. 13-9-10. Cg. 3,965 ft.

Phillips Pet. Co. No. 1 Becker, NE NW SW sec. 8-5-10. T.D. 6,286 ft.; plug. 5,612 ft.; drld. out to 5,660 ft.; flwd. 217 B.O. in 24 hrs., cutting 10%.

Troup & Strickland No. 1 Brown, NW SW NE sec. 32-6-8. S.D. 660 ft.

Kay County

J. R. Pierse No. 1 Hannon, SE cor. sec. 26-28-2e. T.D. 1,670 ft.; (cor.); D.&A.

R. J. Shaffer et al No. 1 McKee, NE NW sec. 20-28-1w. T.D. 2,500 ft.; S.D.

Kiowa County

Anderson-Prichard Oil Corp. No. 1 Cribbs, sec. 28-7n-19w. Drlg. 675 ft.

Anderson-Prichard Oil Corp. No. 1 Johnson, sec. 10-7-20w. T.D. 845 ft.; fsg.

Gauntt & Baker No. 1 Parks, NW NW SW sec. 29-7-20w. S.D. 720 ft.

Lincoln County

Wilcox O. & G. Co. No. 1 Evans, SW SW NW sec. 21-14-6. Drlg. 3,160 ft.

Wilcox O. & G. Co. No. 1 Royer, SE SE NE sec. 18-14-6. T.D. 3,372 ft.; P.B. 3,240 ft.; waiting.

Logan County

Carter Oil Co. No. 1 Lydick, C E½ NW NE sec. 23-15-4w. Drlg. 5,700 ft.

Sinclair-Prairie No. 1 Crews, SW SW NE sec. 27-16-1e. Drlg. 3,265 ft.

Muskogee County

Midco Oil Corp. No. 1 Dunagan, SE SE NE sec. 31-11-19. Drlg. 2,840 ft.

Murray County

Gilbreath & Dutton No. 1 Wolfe, C SE SW sec. 8-1-2. Drlg. 845 ft.

Okfuskee County

Alma Oil Co. No. 1 Martin, SW cor. sec. 4-12-7. Drlg. Skinner sd. 2,900 ft.

Burke-Greis Oil Co. No. 1 Capps, SE cor. sec. 7-13-7. T.D. 3,227 ft.; shot 2,818-48 ft.; 2,874 ft.; S.D.O.

Osage County

Chevalier-Simon No. 1 Osage, NW NW SW sec. 33-27-5. S.D. 2,385 ft.

Norbla Oil Co. No. 1 Osage, SE cor. sec. 18-25-7. Drlg. sh. 1,520 ft.

Pawnee County

Darby No. 1-A Lillie, NW NW SW sec. 1-22-3. Drlg. 149 ft.

O. O. Owens et al No. 1 Riddle, C E½ E½ NW sec. 30-22-7. Drlg. 1,000 ft.

Payne County

R. L. Kemp et al No. 1 Rafferty, SE SE NE sec. 6-18-5. T.D. 3,666 ft.; H.F.O. in 12 hrs.; to rerun 6-in. csg.

Sun Oil Co. & Loffland Bros. No. 1 Scafe, SE SE NE sec. 12-18-1e. Drlg. 4,809 ft.

Texas Co. No. 1 Logan, C W½ NW NW sec. 12-17-1e. Drlg. 3,920 ft.

Pittsburg County

Supreme Oil Corp. No. 1 Hickey, NW SW NW sec. 4-2n-15. T.D. 503 ft.; S.D.; repairs.

Pontotoc County

Caloma Oil Corp. No. 1 Brents, SE NE SW sec. 4-1n-6. T.D. 1,574 ft.; S.D.; lost circ.

Cowley et al No. 1 McCormick, NW SW SW SE sec. 27-2n-4e. T.D. 330 ft.

Farmers Mutual Royalty Corp. No. 1 Waite, NE NE NW sec. 9-5-5. Drlg. 690 ft.

Jack Lynch et al No. 1-A Parker, SW SW SE sec. 17-4-8. T.D. 3,180 ft.

L. P. Sandback et al No. 1 Porter, NE SE NW sec. 28-4-7. Drlg. 920 ft.

Union Dev. Co. No. 1 Abbott, SW NW NE sec. 34-3-6. T.D. 3,320 ft.; S.D.

Pottawatomie County

Mid-Continent Pet. Corp. et al No. 1 Smith, NE SE SW sec. 31-7-4. Drlg. 4,363 ft.

Pure Oil Co. No. 1 Lack et al, SE SW NW sec. 3-6-5. Drlg. 2,474 ft.

Shell Pet. Corp. No. 1 Boley, SE SE SW sec. 5-11-6. Drlg. 1,585 ft.

Seminole County

W. A. Delaney et al No. 1 Swan, SE SW SW sec. 18-6-6. Drlg. 1,337 ft.

Magnolia Oil Co. No. 1 Merrell, SW SE NE sec. 34-6-5. Drlg. 600 ft.

W. B. Pine No. 1 Wright, SE SE NE sec. 16-6-6. P.B. 3,615 ft.; acd.; swbd. est. 85 B.O. with wtr. in 6 hrs.; swbg.

Smith & Greer No. 1 Coker, NW NE NE sec. 25-7-5. Drlg. 2,300 ft.

Summitt Drlg. Co. No. 1 Wass, SE NE NE sec. 30-8-7. T.D. 4,255 ft.; to D.D.

W. A. Villines et al No. 1 Swan, NW NE NW sec. 26-7-5. T.D. 3,001 ft.; flwd. 103 B.O. in 22 hrs.; P.O.P.

H. V. Woodson and Marydun Oil Co. No. 1 Gilliland, SE SW sec. 24-11-7. T.D. 4,522 ft.; nothing showing.

Texas County

Hagey et al No. 1 Peck, C NE sec. 6-1n 13ecm. T.D. 2,895 ft.; to acdz.

Hardendorf & Kuhn No. 2 Wiggin, C NE sec. 2-2n-14ecm. Drlg. 1,800 ft.

Washita County

L. B. McWhirter No. 1 fee, NW SW SW sec. 34-8-19w. T.D. 2,147 ft.; fsg.

SOUTHERN OKLAHOMA

Atoka County

Amerada Pet. Corp. and Stanolind O. & G. Co. No. 1 Ridgway, NE cor. sec. 24-3s-9. T.D. 4,513 ft.; fsg.

C. M. Sheldon and Gardner Pet. Co. No. 1 Lee, NE NW SW sec. 2-4s-10e. T.D. 2,714 ft.; fsg.

Carter County

Texas Co. No. 1-B Cathey, SE NE NE sec. 6-5s-1w. T.D. 5,685 ft.; to perf. and test.

Choctaw County

Dr. Hardy et al No. 1 fee, SE SE NW sec. 21-7s-15. Drlg. 310 ft.

Clyde Ross et al No. 1 Hardy, SE SE NW sec. 21-7s-15. Drlg. 310 ft.

Cotton County

Jim Turner et al No. 3 Collins, SE SE NE sec. 18-4s-10w. Loc.

Love County

Sinclair Prairie Oil Co. No. 1 Peabody, NE cor. sec. 35-6s-2w. Drlg. 5,927 ft.

Marshall County

E. W. Hughes Drlg. Co. et al No. 1 Vittitoe, C NE SE sec. 11-5s-4e. Drlg. L. 5,835 ft.

Stephens County

Coline Oil Co. No. 1 Johnson, C SW SE SE NE sec. 1-2n-8w. T.D. 10,000 ft.; 9,050 ft.; made several hd. flws., 37-grav. oil. S.I.O.

Helmerich & Payne No. 1 Mauersberger, C S½ SW SE sec. 29-2n-8w. Drlg. 6,955 ft.

B. F. Lundy et al No. 1 Oxford, NE NE SW sec. 26-1s-4w. Drlg. 764 ft.

Tillman County

Russell & Ray No. 1 Hasley, NW NE NW sec. 4-1s-19w. T.D. 2,750 ft.; S.D.O.

Smith No. 2 Hammell, NE NW NW sec. 6-5s-15w. T.D. 2,000 ft.; S.D.

LOUISIANA

NORTH LOUISIANA PROVEN

Caddo—Rodessa

Gulf Oil Corp. No. 2 Allison, sec. 3-23-16. Set 7-in. csg. 5,904 ft.; T.D. 5,998 ft.

J. S. Rushing No. 1 Gibson, sec. 10-23-16. Drlg. L.&sh. 5,770 ft.

Shell Pet. Corp. No. 5-B U. S. Govt., sec. 3-23-16. Cg. 5,970 ft.; Mitchell sd. 5,946-52 ft.

N. LOUISIANA WILDCATS

Bienville Parish

Gulf Ref. Co. No. 1 Goodpine, sec. 25-14-8. Drlg. hd. sd.&sh. 9,453 ft.

Producers O. & G. Co. No. 1 Locke, NE cor. sec. 9-15-10. O.W.W.O.; old T.D. 2,960 ft.; rmd. to 800 ft.; S.G.; hole cleaned out; arng. run Schlumberger.

Bossier Parish

Premier Inv. Co. No. 1 McDade, SE SW NE sec. 28-19-11. S.D. 2,034 ft.

Sloan, Lloyd et al No. 1 Sherrill, sec. 12-19-12. S.D. 508 ft.; rep. rig.

Triangle Drlg. Co. No. 3-A Herold, NE SW sec. 13-17-12. Drlg. 100 ft.

Union Prod. Co. No. 2 Thigpen-Herold, sec. 13-17-12. Drlg. sh.&sd. 1,780 ft.

Caddo Parish

Carroll et al No. 1 Hart, NW sec. 26-21-16. R.U.

J. P. Driscoll No. 2 Sattelite, sec. 10-20-15. Set 6-in. csg. 2,175 ft.; T.D. 2,189 ft.

W. D. Flynn No. 4 Natalie, SE cor. sec. 10-21-16. Set 7-in. at 998 ft.; W.O.; T.D. 1,027 ft.

Hancock & Ulman No. 3 Helpman, sec. 16-21-16. T.D. 1,014 ft.; W.O.S.R.

J. T. Humphrey No. 1 Caddo Levy Bd., sec. 26-21-16. S.D. 1,800 ft.

R. E. Kennedy No. 2 Wells, sec. 10-21-15. Set 5⅜-in. csg. 1,580 ft.; T.D. 1,604 ft.

Pet. Heat & Power Co. No. 3 Stiles, sec 33-21-16. Set 6-in. at 948 ft.; T.D. 958 ft.; comp.; pmp. 10 B.P.D. oil, 100 bbls. S.W.

Petroleum Heat & Power Co. No. 1 Wemple, NW cor. sec. 14-20-15. Set 6-in. csg. 2,185 ft.; drlg. sh. 2,285 ft.

Simplex Oil Co. No. 6 Natalie, sec. 10-20-15. S.D. 2,000 ft.

G. R. Stevens No. 3 Hart, sec. 22-21-16. Set 6-in. csg. 997 ft.; W.O.S.R. 1,003 ft.

Tippett Oil Corp. No. 1 Lewis, sec. 27-20-16. Drlg. ch. rk. 1,325 ft.

Triple M Oil Co. No. 1 Boisseau, sec. 34-21-16. S.D.; W.O. 1,853 ft.

Claiborne Parish

Atlantic Ref. Co. No. 3-B Bean, sec. 32-21-4. R.U.

Harry Fetiades No. 3 King, sec. 11-20-5. R.U.

Harry Fetiades No. 4 King, sec. 10-20-5. R.U.

Gulf Oil Corp. No. 3 Patton, sec. 11-20-5. R.U.

Gulf Oil Corp. No. 1 Whitman, sec. 2-20-5. Sat. L. 5,190-97 ft.; set 7-in. csg. 5,168 ft.; comp.; 1,000 B.P.D.; 22/64-in. ck.; T.D. 5,205 ft.

Hollifield & McFarland No. 4 Patton Est., sec. 2-20-5. Set 7-in. csg. 5,248 ft.; T.D. 5,258 ft.

T. L. James No. 3 Fowler, C NW SE sec. 32-21-4. Drlg. sh. 3,800 ft.

C. H. Lyon et al No. 1-A Lloyd, sec. 2-20-5. Set 10¾-in. csg. 704 ft.

Magnolia Pet. Co. No. 1 Lloyd, NW SE sec. 2-20-5. Drlg. sh.&L. 4,680 ft.

E. T. Oakes et al No. 1 Whitman, sec. 2-20-5. Sat. L. 5,264-68 ft. and 5,269-73 ft.; T.D. 5,277 ft.; set 5½-in. csg. 5,261 ft.; comp.; 25 B.P.H.; ¼-in. ck.

C. R. Schuster No. 1 Kilgore, sec. 28-21-15. R.U.

Sells Pet. Co. No. 1-A Patton, sec. 11-20-5. Set 10¾-in. csg. 812 ft.

Sklar Oil Corp. No. 1 Kilgore, sec. 11-20-5. Set 10¾-in. csg. 788 ft.

Texas Co. No. 1 Tippett, sec. 33-21-4. Drlg. sh. 3,498 ft.

W. A. Thorpe No. 1 Fowler, sec. 33-21-4. R.U.

Union Prod. Co. No. 2 Brownfield, sec 5-19-5. T.D. 9,964 ft.; sh.; recmtd. back to 8,850 ft.; rmg. bridge at 8,475 ft.; drlg. 10,623 ft.

Union Prod. Co. No. 1 Coleman, sec. 43-7-9e. Drlg. sh.&L. 4,911 ft.

G. H. Vaughn et al No. 2-B Eppinger, sec. 30-21-4. Drlg. 4,308 ft.

Weaver Oil Corp. No. 2 Edmonds, sec. 16-20-5. Drlg. sh.&L. 4,849 ft.

Concordia Parish

Morrison & Co. No. 1 Winston, sec. 43-7-9e. Set 10-in. csg. 452 ft.

De Soto Parish

S. S. Alexander No. 1 Stoll, NE cor. sec. 5-12-16. O.W.W.O.; old T.D. 6,002 ft.; set short string 5½-in. csg. 5,479 ft. perf. 5,290-5,310 ft.; dry; 5,140-60 ft., S.W.; 5,170-80 ft., S.W.

Hunter Co. No. 1 Parker, sec. 26-12-16. Drlg. sh. 1,303 ft.

La. Seaboard Oil Ref. Co. No. 1 Lawrence, sec. 36-12-14. D.S.T. 2,038-62 ft.; tstd. 80 jts. mud cut with oil in 20 min.; rng. csg. 2,062 ft.

Paul Miller No. 1 Jal Drlg. Co., C sec. 7-11-11. D.S.T. 2,800 ft.; rec. S.W.; S.D.; rep.; T.D. 2,900 ft.

Pet. Heat & Power Co. No. 1 DeSoto Corp., SE cor. SW NW sec. 7-11-11. Missed sd.; T.D. sh. 2,868 ft.; set whipstock 2,140 ft.; cg. 2,730 ft.

Pet. Heat & Power Co. No. 1-B Kavanaugh, sec. 12-11-12. Set 8-in. csg. 175 ft.

Pet. Heat & Power Co. No. 1 Matthews, sec. 29-12-11. Old T.D. 4,003 ft.; P.B. 3,950 ft.

Pet. Heat & Power No. 1 Williams, W. R., NW NE sec. 13-11-12. (Cor.); D.S. T. 2,800-18 ft.; S.G.; 7-in. csg. set 2,800 ft.; tstg. 2,827 ft.; W.O.; T.D. 2,827 ft.; tstd. S.G.; arng. D.D. 2,827 ft.

Texas Co. No. 2 White, SW NE sec. 24-12-12. Set 4½-in. csg. 835 ft.; tstd. dry; S.G.; rng. sd. pmp.; T.D. 890 ft.

Grant Parish

K-M Pet. Co. No. 1 Holmes, sec. 20-9-1e. Set 10-in. csg. 60 ft.

C. L. Thompson No. 1 McNeely Est., NE cor. sec. 10-6-3w. S.D. 700 ft.

La Salle Parish

Alexander & Jarvis No. 1 Tremont, sec. 2-9-1e. Set 6-in. csg. 1,490 ft.; T.D. 1,493 ft.

Cupples et al No. 1 King, sec. 25-10-1e. Set 5⅛-in. csg. 1,540 ft.; S.D. 1,549 ft.

Pet. Heat & Power Co. No. 2 Wright, sec. 26-10-1e. T.D. 1,534 ft.; comp.; pmpg. 5 B.P.D.; 6-in. csg. 1,525 ft.

Lincoln Parish

Lyons & Neely No. 1 Brazzill, C SE NW sec. 17-20-4. Drlg. 4,040 ft.

Magnolia Pet. Co. No. 2 Patton, sec. 7-20-4. Set 7-in. csg. 5,380 ft.; tstg. 5,399 ft.

Magnolia Pet. Co. No. 3 Pollock, C N½ SW SE sec. 5-20-4. Drlg. L. 5,256 ft.

Morehouse Parish

W. J. Furlong No. 1 Clark, sec. 10-20-7e. Set 9⅝-in. csg. 2,805 ft.; top Big L. 6,207 ft.; S.D. hd. L. 7,023 ft.

Natchitoches Parish

W. P. Ryan et al No. 1 Lambert, sec. 4-8-9. Drlg. ch. rk. 2,448 ft.

Red River Parish

Glassell & Whitehurst No. 1 LeLong, NE NW NE sec. 25-12-11. S.D. 2,874 ft.

Yandell Rogers No. 5 Gaspair, SE SW sec. 27-13-11. Set 5⅛-in. csg. 2,453 ft.; T.D. 2,474 ft.; W.O.S.R.

Sabine Parish

H. N. Morris No. 1 Irving & Bishop, C NW NW sec. 18-7-12. Set 6-in. csg. 2,160 ft.; T.D. 2,200 ft.

Plymouth Oil Corp. No. 1 Kezerle, sec. 3-7-13. Set 7-in. csg. 2,065 ft.; T.D. 2,065 ft.

W. L. Posey No. 1 Ramirez, C NW NW sec. 12-7-13. Set 6-in. csg. 2,111 ft.; tstd. S.W. 2,555 ft.; arng. to D.D.

Republic Gas Co. No. 1 Whitney Corp., sec. 8-9-13. Drlg. sh. 8,590 ft.

Royal O. & G. Co. No. 3-A Frost Lbr. Co., C NE SE sec. 19-9-13. Set 7-in. csg. 1,540 ft.; T.D. 1,660 ft.

Sutton-Zwolle Oil Co. No. 1 Sabine Lbr. Co., SE cor. NW NE sec. 23-7n-14w. S.D.; cd. bl. sh. 3,875 ft.

Lee Whitehurst No. 6 Frost Lbr. Co., sec. 29-9-13. R.U.

Tensas Parish

H. V. Schumacker No. 4 Mount Plantation, sec. 39-11-12e. S.D. 1,100 ft.

Union Parish

Standard Oil Co. of La. No. 1 Frost Lbr.,

McGREGOR

12 Different Types of Working Barrels

OUR aim is to satisfy our customers by supplying them with a complete line of equipment for pumping wells. Our line includes:

Brass, Steel and Cast Iron Working Barrels
New "MAC" Plunger Barrel
Working, Standing and Drop Valves
Balls and Seats, etc.

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McGREGOR WORKING BARREL COMPANY
Bradford, Pa., U.S.A.

sec. 14-21-1e. Drlg. rd. sh. and strks. L. 8,966 ft.

Webster Parish

Fohs Oil Co. No. 1 Crichton, sec. 33-21-10. Cg. 5,960 ft.
Hunt Oil Co. No. 6 Babb, C NE SW sec. 14-21-10. Drlg. L.&sh. 7,095 ft.
Hunt Oil Co. No. 7 Babb, C NW SE sec. 14-21-10. Drlg. L. 3,545 ft.
Hunt Oil Co. No. 9 Davis, sec. 14-21-10. Drk.
Hunt Oil Co. No. 3 Webb, C NW SW sec. 13-21-10. Drlg. sh. 2,893 ft.
Magnolia Pet. Co. No. 1 Coyle-Tiner, C sec. 21-21-10. Drlg. sh.&sdy. L. 8,161 ft.
Magnolia Pet. Co. No. 1 Sexton Unit, NW SE sec. 32-23-9. Cd. Bodcaw sd.; no show; cd. sd. 8,293-8,310 ft.; gas odor; slight show gas and dist.; cg. hd. sdy. L. 8,599 ft.; ran Schlumberger 8,521 ft.; cd. sd. 8,899-8,906 ft.; gas odor; sd. at 9,007 ft.; dist. odor; drlg. sh.&sdy. L. 9,300 ft.
Midstates Oil Corp. No. 1 Welori Lbr. Co., C NW NW sec. 3-20-10. Top Tr. Pk. 6,029 ft.; no Holloway sd.; drlg. rd. sh.&L. 6,275 ft.
Morgan et al No. 1-A Hope, C NW NW sec. 25-21-10. Drlg. hd. sdy. sh. 6,694 ft.
North American Oil Consol. Co. No. 2 Stewart, C NE NE sec. 32-21-10. Drlg. L.&sh. 4,666 ft.
Ohio Oil Co. No. 3 Bodcaw, Acct. 4, sec. 28-21-10. Drlg. lmy. sh. 6,487 ft.
Ohio Oil Co. No. 49 Bodcaw (Acct. 3), C NW NW sec. 34-21-10. Set 13⅜-in. csg. 808 ft.; drlg. sh. 8,107 ft.
Ohio Oil Co. No. 50 Bodcaw, Acct. 3, sec. 34-21-10. R.U.
Ohio Oil Co. No. 1 Crutsinger, NE cor. sec. 35-2-10. Drlg. sh. 8,107 ft.
Ohio Oil Co. No. 1 Gray, NW cor. SE NW sec. 28-21-10. Drlg. L.&sh. 6,486 ft.
Ohio Oil Co. No. 24 Gray, NE cor. sec. 35-21-10. Drlg. sh. 6,615 ft.
Ohio Oil Co. No. 1 A. H. Gray, Acct. 3, sec. 26-21-10. Drlg. sh.&anhy. 4,327 ft.
Ohio Oil Co. No. 5 Holloway, NE cor. SE NE sec. 23-21-10. Holloway sd. 5,603-15 ft.; comp. 358 B.P.D.; ½-in. ck.; T.D. 5,849 ft.
Ohio Oil Co. No. 1 Jackson, sec. 27-21-10. Drlg. L.&sh. 5,243 ft.
Ohio Oil Co. No. 1 Sandlin, sec. 27-21-10. Drlg. L.&sh. 5,170 ft.
Oliphant No. 3 Banks, sec. 34-21-10. Top Tr. Pk. 5,797 ft.; drlg. sh.&sd. 7,154 ft.
A. G. Oliphant No. 2 Hodges, C NW SE sec. 34-21-10. Drlg. L.&sh. 4,720 ft.
A. G. Oliphant No. 1 Stewart, sec. 33-21-10. Holloway sd.; no show; drlg. sdy. sh. 7,259 ft.
Stanolind O. & G. Co. No. 1 Pardee Co., SW NE sec. 36-21-10. Drlg. sd.&sh. 7,365 ft.
Union Prod. Co. No. 1 Josey, sec. 27-21-10. R.U.
Union Prod. Co. No. 1 Stewart, SE cor. SE sec. 28-21-10. Bodcaw sd. 8,269-8,319 ft.; set 7-in. csg. 8,270 ft.; T.D. 8,325 ft.; S.D.; W.O.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Franciol, sec. 67-12s-3e. R.U.
Continental Oil Co. No. 1 Hebert, sec. 67-12s-3e. 10¾-in. csg. 1,510 ft.; T.D. 7,448 ft.; D.S. stk.; fsg.; P.B. 7,301 ft.; to sdtrk.; drlg. along fish at 7,355 ft.
Continental Oil Co. No. 1 Motty, sec. 67-12s-3e. Drlg. sh. 6,528 ft.

Baton Rouge—East Baton Rouge Parish

Wm. Helis No. 3 La. State, sec. 65-7s-1w. Drlg. sh. 2,460 ft.

Bay St. Elaine—Terrebonne Parish

F. J. LeBlanc No. 2 Wurzlow, sec. 17-22s-18e. S.D. 816 ft.
Texas Co. No. 16 State, sec. 12-22s-17e. Drlg. salt 6,177 ft.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 6 Wilbert Sons Lbr. Co., sec. 66-9s-11e. T.D. 6,991 ft.; 7-in. csg. 6,982 ft.

Bayou Cocotris—Terrebonne Parish

Shell Pet. Corp. No. 5-B Realty Co. T.D. 9,498 ft., oil sd.

Bayou De Allemands—St. Charles Parish

Amerada Pet. Corp. No. 1 Gheens Realty Co., sec. 56-15s-20e. T.D. 7,010 ft.; P.B. to 6,351 ft.; D.S. stk. at 6,451 ft.
Amerada Pet. Corp. No. 4 State, sec. 13-15s-20e. 13⅜-in. csg. 1,976 ft.; W.O.C.

Big Lake—Cameron Parish

Union Sulphur Co. No. 2 Miami Corp., sec. 19-12s-8w. T.D. 9,439 ft.; P.B. to 6,000 ft. to sdtrk.

Black Bayou—Calcasieu Parish

Shell Pet. Corp. No. 41 Watkins, sec. 17-12s-12w. Drlg. sdy. L. 4,982 ft.

Caillou Island—Terrebonne Parish

Texas Co. No. 1 L.L.&E., sec. 18-23s-20e. T.D. 5,310 ft.; P.B. and sdtrkd.; drlg. sh. 5,026 ft.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 23 School Ld., sec. 16-14s-13w. Cg. sd. 5,622 ft.
Burton-Sutton Oil Co. No. 24 School Ld., sec. 16-14s-13w. Drk.
Burton-Sutton Oil Co. No. 25 School Ld., sec. 16-14s-13w. R.U.R.
Magnolia Pet. Co. No. 22 Cameron Meadows, sec. 21-14s-13w. Cg. oil sd. 4,242 ft.

Chenevville—Rapides Parish

Texas Co. No. 3 Well Ld. Co., sec. 53-1s-2e. Drlg. sh.&L. 3,119 ft.

Charenton—St. Mary Parish

Commerce Oil Co. No. 1 Dalph Parro, sec. 31-13s-10e. Drlg. sh. 2,790 ft.
Pan American Prod. Co. No. 3 South Coast Corp., sec. 30-18s-10e. T.D. 7,833 ft.; P.B. 7,228 ft.; sdtrkd.; T.D. 8,446 ft.; P.B. 6,117 ft.; sdtrkd.; drlg. sh. 6,117 ft.
Pan American Prod. Co. No. 7 Laws Realty Co., sec. 25-13s-9e. T.D. 1,890 ft.; 7-in. csg. 1,881 ft.; I.P. 72 B.P.D.; pmpg.

Choctaw—Iberville Parish

La. Crusader Oil Co. No. 2 Schwing, sec. 29-8s-11e. Cg. sd. 5,861 ft.

Darrow—Ascension Parish

Darrow Oil Co. No. 1 Dennis, sec. 68-10s-2e. T.D. 2,150 ft.; S.D.
Humble O. & R. Co. No. 17 Community, sec. 33-10s-2e. T.D. 6,584 ft.; perf. csg. 6,064 ft.; made sqz. job; drlg. out cmt.
Humble O. & R. Co. No. 18 Community, sec. 30-10s-2e. R.U.
Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 21 State, sec. 5-22s-16e. T.D. 7,174 ft.; P.B. 5,490 ft.; sdtrkd.; drlg. sd.&sh. 6,161 ft.

Four Isle—Terrebonne Parish

Texas Co. No. 19 State-Lake, sec. 17-23s-18e. Drlg. sd. 5,286 ft.

Fausse Point—Iberia Parish

Texas Co. No. 4 State, sec. 35-11s-8e, 18⅝-in. csg. 90 ft.; top sd. 7,912 ft.; top salt 6,595 ft.; T.D. 9,246 ft.; rng. csg.

Garden Island—Plaquemines Parish

Texas Co. No. 27 State, sec. 38-23s-33e. Cg. sdy. sh. 4,731 ft.

Hackberry—Cameron Parish

W. T. Burton No. 2 Kenedy, sec. 22-12s-10w. T.D. 3,231 ft.; 7-in. csg. 3,207 ft.
W. T. Burton No. 3 Lewis, sec. 22-12s-10w. R.U.
John Merrick No. 1 R. Vincent, sec. 28-12s-10w. Drk.
Stanolind O. & G. Co. No. 8 Carter & Sweeney, sec. 22-12s-10w. R.U.
Stanolind O. & G. Co. No. 10 Carter & Sweeney, sec. 22-12s-10w. R.U.; (cor.).
Stanolind O. & G. Co. No. 54 State-Kelso, sec. 16-12s-10w. T.D. 5,825 ft.; P.B. 4,000 ft.; T.D. 5,817 ft.; oil sd. 5,793-5,812 ft.
Stanolind O. & G. Co. No. 55 State-Kelso Bayou, sec. 16-12s-10w. Drlg. sd. rk. 2,830 ft.
Superior Oil Co. No. 1 Benson-Vincent, sec. 30-12s-10w. Drlg. sh. 6,635 ft.
Texas Co. No. 24-B State, sec. 12s-9w T.D. 8,052 ft.; blew out; stk. D.S.; fsg.
Union Sulphur Co. No. 1 Doiron, sec. 3, 12s-10w. T.D. 4,888 ft.; 7-in. csg. 4,876 ft.; heaving sh. 5,940 ft.; P.B. 3,572 ft.; sdtrkg. at 3,531 ft.; drlg. sh. 5,461 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co. No. 1 St. Mary Parish Ld. Co., sec. 37-17s-9e. 13⅜-in. csg. 1,837 ft.; cg. sh.&L. 10,752 ft.; cd. sd.; oil odor 10,655-95 ft.; T.D. 11,067 ft.; 7⅝-in. csg. 11,062 ft.; W.O.C.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 2 Carter, sec. 38-13s-9e. T.D. 9,939 ft.; 7-in. csg. 9,937 ft.; T.D. 10,476 ft.; well tried to blow out; P.B. and sdtrkd.; drld. to 10,482 ft.; P.B. 9,335 ft.; W.O.C.
Herton Oil Co. No. 1-A Roane Sugar Co., sec. 38-13s-9e. Drlg. sh. 7,057 ft.

Jennings—Acadia Parish

F. W. Bennett No. 2 Brethern, sec. 41-9s-2w. Drlg. sh. 4,633 ft.
H. Fotiades No. 2 Washington Opelousas, sec. 41-9s-2w. 16-in. csg. 106 ft.; drlg. sh.&L. 6,519 ft.
Fred I. Getty No. 1 Lyons Oil Corp., sec. 46-9s-2w. 6⅝-in. csg. 1,580 ft.; T.D. 2,026 ft.; run tbg.
Gulf Ref. Co. No. 39 Arnaudit, sec. 47-9s-2w. T.D. 4,840 ft.; P.B. 2,585 ft.; T.D 4,586 ft.; 9⅝-in. csg. 4,578 ft.; cg. sdy. sh.&L. 6,825 ft.
Jolly Pet. Co. No. 2 McFarlain, sec. 41, 9s-2w. T.D. 7,180 ft.; 7-in. csg. 7,020 ft. I.P. 520 B.P.D.; 13/64-in. ck.
L. & L. Oil Co. No. 1 Syndicate Clement, sec. 46-9s-2w. T.D. 1,814 ft.; 6⅝-in. csg. 1,590 ft.
T. G. Markley No. 1 Gulf Ld., sec. 45-9s-2w. R.U.
Pet. Heat & Power Co. No. 1 Iowa-Jennings, sec. 45-9s-2w. S.D. 3,420 ft.
Stanolind O. & G. Co. No. 19 Houssiere-Latrelle, sec. 47-9s-2w. T.D. 6,448 ft.; P.B. 6,135 ft. to strtn. hole; T.D. 6,979 ft.; P.B. 6,700 ft.; P.B. and sdtrkg. 7,509 ft.; drlg. hd. sd. 7,805 ft.
Superior Oil Co. No. 2 Julis Clement, sec. 46-9s-2w. Drlg. sh. 6,702 ft.
Superior Oil Co. No. 6 Jennings-Heywood, sec. 41-9s-2w. T.D. 6,056 ft.; fsg P.B. and sdtrkd.; T.D. 6,472 ft.; 7-in. csg. 6,339 ft.; I.P. 478 B.P.D.; 14/64-in. ck.
Superior Oil Co. No. 9 Leckelt, sec. 42-9s-2w. T.D. 7,281 ft.; sdtrkd.; drlg. sh. 6,780 ft.
Superior Oil Co. No. 10 Leckelt, sec. 43-9s-2w. Drlg. sh.&L. 3,714 ft.
Superior Oil Co. No. 12 Leckelt, sec. 42-9s-2w. Drlg. sh. 6,620 ft.
Superior Oil Co. No. 13 Leckelt, sec. 42-9s-2w. R.U.
Victor Weisse No. 1 Clement, sec. 46-9s-2w. T.D. 3,247 ft.; run csg.

Lafitte—Jefferson Parish

Texas Co. No. 10 Lafitte, sec. 17-17s-24e. Drlg. sh.&L. 8,916 ft.
Texas Co. No. 1-B Madison, sec. 19-17s-24e. Drlg. sd. 7,301 ft.
Texas Co. No. 3 Marrero Ld. Co., sec. 29-17s-24e. R.U.
Texas Co. No. 9 Rigolet-Cooperation Fur Co., sec. 29-17s-24e. Cd. oil sd. 10,106-11 ft.; drlg. sh. 10,182 ft.

Lake Barre—Terrebonne Parish

Texas Co. No. 42 State-Lake, sec. 40-21s-19e. Drlg. sd.&L. 2,420 ft.

Lake Long—Lafourche Parish

Fohs Oil Co. No. 4 State, sec. 64-17s-19e 10¾-in. csg. 2,707 ft.; cg. sd. 9,401 ft.

Leesville—Lafourche Parish

Texas Co. No. 68 L.L.&E., sec. 27-21s-22e. T.D. 5,139 ft.; sdtrkd.; drlg. sdy. sh. 5,058 ft.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 Wurzlow, sec. 32-19s-19e. Drlg. sdy. sh. 7,849 ft.
Union Prod. Co. No. 1 Fundenburk, Unit 1, sec. 50-19s-19e. Drlg. sh.&L. 8,457 ft.

New Iberia—Iberia Parish

Wm. Helis No. 5 Bolivar, sec. 56-12s-7e T.D. 4,337 ft.; salt; P.B. and sdtrkd. T.D. 3,594 ft.; 7-in. csg. 3,100 ft.; made sqz. job 3,070-60 ft.; drlg. out cmt.
Wm. Helis No. 4 Schwing, sec. 56-12s-7e. T.D. 4,216 ft.; P.B.; sdtrkd.; T.D. 3,627 ft.; salt; S.D.
Wm. Helis No. 5 Schwing, sec. 56-12s-7e. Drlg. sh. 836 ft.
Texas Co. No. 4 Bryant, sec. 25-12s-7e. Drlg. sd.&sh. 3,146 ft.
Texas Co. No. 2 Burke, sec. 56-12s-7e. R.U.
Texas Co. No. 5 Duhe, sec. 26-12s-7e. T.D. 5,042 ft.; P.B.; sdtrkd.; drlg. sh. 4,820 ft.
Texas Co. No. 11-B Hanzen, sec. 54-12s-7e. Drlg. sd.&sh. 5,128 ft.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 1 R. C. Davis, sec. 45-8s-1e. R.U.
Humble O. & R. Co. No. 2 Habetz, sec. 45-8s-1e. Drk.
Humble O. & R. Co. No. 1 Smith, sec. 44-8s-1e. 7-in. csg. 8,287 ft.; drlg. sh. 8,456 ft.
Humble O. & R. Co. No. 1 Traham, sec. 3-9s-1e. 7-in. csg. 9,771 ft.; drlg. sh. 9,797 ft.

Port Barre—St. Landry Parish

Pan American Prod. Co. No. 5 Cormier, sec. 4-6s-5e. T.D. 4,821 ft.; oil sd.
Texas Co. No. 22 Botney Bay Lbr. Co. sec. 4-6s-5e. T.D. 3,569 ft.; P.B. 3,434 ft.; set csg. 3,434 ft.; W.O.C.

Quarantine Bay—Plaquemines Parish

Gulf Ref. Co. No. 4 State, sec. 17-19-17e. T.D. 5,700 ft.; 9⅝-in. csg. 5,560 ft cd. sd., oil odor 7,853-8,227 ft.; T.D. 8,305 ft.; rmg.; D.S.T. 8,116-8,227 ft. tstd. 540 ft. oily mud, 60 ft. oil, 640 ft.; cd. sd., oil odor, 8,312-21 ft.; T.D. 8,327 ft.; D.S.T. tstd. 3,420 ft. S.W.

Raceland—Lafourche Parish

Amerada Pet. Corp. No. 1 Godchaux Sugars, Inc., sec. 34-15s-19e. Drk.
Amerada Pet. Corp. No. 2 South Coast Corp., sec. 34-15s-19e. R.U.

Roanoke—Jeff Davis Parish

Humble O. & R. Co. No. 1 Williams, sec. 13-9s-4w. Drlg. sh. 7,730 ft.

South Elton—Jeff Davis Parish

Stanolind O. & G. Co.-Amerada Pet. Corp. No. 3-B Calcasieu Natl. Bank, sec. 2, 7s-3w. T.D. 9,154 ft.; conditioning hole 9⅝-in. csg. 8,647 ft.; T.D. 13,210 ft.; D.S. stk.; P.B.; 7-in. csg. 9,230 ft.; P.B. 9,188 ft.; perf. csg. 9,140-55 ft.; tstg.

Starks—Calcasieu Parish

Capital Oil Co. No. 1 Lutcher-Moore, sec 24-9s-13w. R.U.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 860 fee, 1,250 ft. W and 216 ft. N of C sec. 29-9s-10w. Drlg. sd. 1,127 ft.
Union Sulphur Co. No. 861 fee, sec. 29-9s-10w. Drlg. rk. 2,294 ft.

Timbalier Bay—Lafourche Parish

Gulf Oil Corp. No. 4 State, sec. 36-22-21e. T.D. 1,373 ft.; twisted off drill collar; fsg.

Valentine—Lafourche Parish

Wm. Helis No. 1 Valentine-Sugars, Inc sec. 2-17s-20e. T.D. 7,134 ft.; P.B. and sdtrkd.; T.D. 7,068 ft.; P.B. 3,500 ft.; sdtrkd.; drlg. sh. 4,117 ft.
Pan American Prod. Co. No. 2-B Community, sec. 58-17s-20e. Drk.
Pan American Prod. Co. No. 1 Ducos-Ariabat, sec. 10-17s-20e. Core sd. 7,532 ft.
Pan American Prod. Co. No. 17 Harang sec. 9-17s-20e. T.D. 7,496 ft.; P.B. and sdtrkd.; drlg. sh. 6,878 ft.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 5 Manhattan Fruit Co., sec. 26-26s-30e. Top oil sd. 7,250 ft.; T.D. 7,300 ft.; P.B. 4,800 ft.; sdtrkd. at 4,813 ft.; cd. oil sd. 7,101-68 ft.; T.D. 7,290 ft.; 7-in. csg. 7,191 ft perf. csg. 5,960-64 ft.; 10-min. D.S.T.; tstd. 120 ft. drlg. mud with oil odor; perf. csg. 5,964-68 ft.; recvd. 14 stnds. of oil, 3 stnds. of drlg. mud and sd.; making sqz. job.
Tide Water Oil Co. No. 7 Manhattan Ld. & Fruit Co., sec. 26-21s-30e. Drlg. sh. 1,060 ft.

Vinton—Calcasieu Parish

M. McLean No. 17 Gray, sec. 35-10s-12w. R.U.
J. V. Reddick No. 2 Vincent, sec. 34-10s-12w. T.D. 2,275 ft.; 7-in. csg. 2,275 ft.; W.O.C.

Villa Platte—Evangeline Parish

Continental Oil Co. No. 1 Martha Haas, sec. 44-3S-2e. Drlg. 2,024 ft.
Continental Oil Co. No. 1 Opelousas, St. Landry Securities Co., sec. 44-3s-2e. Drlg. sh. 8,562 ft.
Continental Oil Co. No. 1 T. E. Vidrine, sec. 47-3s-2e. Cg. sh. 9,178 ft.

Welsh—Jeff Davis Parish

J. Massart No. 1 L. T. Mathews, sec. 27-9s-5w. T.D. 1,714 ft.; T.A.
Stanolind O. & G. Co. No. 2 Conover, sec. 20-9s-5w. R.U.

Woodlawn—Jeff Davis County

Union Sulphur Co. No. 2 Calcasieu Natl. Bnk., sec. 12-9s-6w. T.D. 9,046 ft.; 7-in. csg. 9,056 ft.; perf. csg. 8,904-08 ft.; tstd. S.W.; making sqz. job.

S. LOUISIANA WILDCATS

Acadia Parish

H. E. Dalton No. 1 Setting, sec. 17-7s-1w T.D. 5,106 ft.; P.B. to approx. 500 ft T.D. 3,925 ft.; D.S. stuck.
Humble O. & R. Co. No. 1 Finch, sec 22-10s-1e. 9⅝-in. csg. 7,474 ft.; T.D. 10,216 ft.; losing returns; circulating.

Avoyelles Parish

G. C. Koch et al No. 1 Kelone, sec. 21-2n-3e. 10¾-in. csg. 987 ft.; drlg. sdy. sh. 5,820 ft.

Beauregard Parish

Republic Prod. Co. No. 1 Lutcher-Moore Lbr. Co., sec. 10-13w-6s. 10¾-in. csg. 1,015 ft.; drlg. sh. 7,740 ft.

Calcasieu Parish

Sun Oil Co. No. 1 Lutcher-Moore Lbr. Co., sec. 1-8s-13w. Cg. hd. sh. 6,893 ft.
Wheeler Oil Corp. No. 2 Sch. Ld., sec. 1-9s-7w. 15½-in. csg. 46 ft.; S.D. 641 ft.

Cameron Parish

Humble O. & R. Co. No. 1-B Miami Corp., sec. 7-14s-6w. 13⅜-in. csg. 2,150 ft.; T.D. 9,270 ft.; P.B. 8,850 ft.; sdtrkg.
Superior Oil Co. No. 1 Sellis, sec. 5-15s-8w. Drlg. sh.&shils. 4,617 ft.

Iberia Parish

Texas Co. No. 1 Bayless-Jones, sec. 58-12s-5e. Drlg. sh.&L. 7,392 ft.
Texas Co. No. 2-B Vermilion Bay, sec. 20-16s-5e. T.D. 9,101 ft.; P.B. and sdtrkd. at 5,788 ft.; T.D. 7,020 ft.; P.B. 6,385 ft.; to sdtrk.; T.D. 7,623 ft.; P.B. 7,176 ft.; to sdtrk.; T.D. 7,348 ft.; 9⅝-in. csg. 7,263 ft.; drlg. sh. 8,330 ft.

Jefferson Parish

Julius Szodomka No. 1 Carroll, sec. 12-12s-11e. Drlg. sh. 3,260 ft.

Lafayette Parish

Continental Oil Co. No. 1 Foreman, sec. 36-9s-3e. Drlg. sh. 10,133 ft.

Pointe Coupee Parish

Batchelor Oil Co. No. 1 Hackney, sec. 28-3s-8e. 20-in. csg. 117 ft.; 13⅜-in. csg. 2,170 ft.; drlg. sd., sh.&L. 8,162 ft.

Rapides Parish

J. J. Farrell No. 1 W. P. Aertker, sec. 16-4n-1e. Drk.

St. Bernard Parish

Gulf Ref. Co. No. 3 State Lake, Twp. 12s-15e. 13⅜-in. csg. 1,558 ft.; drlg. sdy. sh. 4,933 ft.

St. James Parish

Continental Oil Co. No. 1 Realty Operators, sec. 17-12s-17e. 18⅝-in. csg. 302 ft.; 13⅜-in. csg. 2,473 ft.; drlg. sd. 3,975 ft.

St. Landry Parish

Nixon & Toombs No. 1 Boagni, sec. 41-6s-4e. Drlg. sh. 8,050 ft.
Western Gulf Pet. Co. No. 1 St. Mary Ld. Co., sec. 7-8s-9e. Drlg. sh. 1,224 ft.

St. Martin Parish

Texas Co. No. 11 St. Martin Ld. Co., sec. 21-8s-7e. Bldg. drk.

St. Tammany Parish

Ozro B. Phillips No. 2 W. L. Stevenson, sec. 33-6s-10e. Drlg. sh.&L. 2,250 ft.

Terrebonne Parish

Fohs Oil Co. No. 1 Buckley & Bourg, sec. 77-19s-17e. Cd. sd. S.G. 11,648-66 ft.; S.D.
Fohs Oil Co. No. 1 State, sec. 41-19s-19e. 18⅝-in. csg. 246 ft.; cd. sd. S.G. 6,894-6,915 ft.; T.D. 9,232 ft.; 9⅝-in. csg. 9,226 ft.; drlg. sh. 10,188 ft.

Vermilion Parish

Magnolia Pet. Co. No. 1 J. B. Ferguson, sec. 5-12s-2w. 13⅜-in. csg. 3,084 ft.; drlg. sd. 5,406 ft.

Vernon Parish

W. T. Burton No. 1 Gulf Lbr. Co., sec. 32-1n-6w. Loc.

ARKANSAS

Bradley County

Robt. Keene et al No. 1 Runyon, sec. 1-16s-21w. D.&A.; T.D. 1,005 ft.; will not drill.

Phillips Pet. Co. No. 1 Marsden, sec. 9-16w-11s. Top Nacatoch 2,581 ft.; cg. L. &sh. 2,790 ft.

Columbia County

Standard Oil Co. of La. No. 2 Crone, NW cor. SE SW sec. 8-16-22. Drlg. sh.&L. 3,935 ft.

Standard Oil Co. of La. No. 1 W. P. Phillips et al. 660 ft. N and W. C sec. 15-17-19. D.S.T. 6,307-15 ft.; rec. 42 stands oil and 3 stands S.W.; flwd. oil; drlg. rd. and wht. sd. with strks. sh. 6,848 ft.

Standard Oil Co. of La. No. 1 Waters et al, 660 ft. SE cor. SE SE sec. 7-16-22. Drlg. sh. 5,082 ft.

Crittendon County

Stanley Oil Corp. No. 1 Danner, sec. 18-8n-9e. D.&A.; T.D. 2,790 ft.

Desha County

Columbian Fuel Corp. No. 1 Cross, SW cor. sec. 34-8s-3w. Cg. 4,895 ft.

Hempstead County

H. D. Easton et al No. 1 LaGrone, sec. 5-12-26. T.D. 2,940 ft.; P.B. 1,007 ft.; drlg. hd. stky. sh. 2,788 ft.

Little River County

Joe G. Strahan et al No. 2 Dierks Lbr. Co. S.D. 2,459 ft.

Miller County—Rodessa

F. W. Burford No. 2 Ahern, sec. 10-20-28. Set 7-in. 6,095 ft.; T.D. 6,140 ft.; comp.; 179 B.P.D.; ¾-in. ck.

F. W. Burford No. 2-B Thomas, sec. 12-20-28. Set 10¾-in. 1,817 ft.

J. L. Caracas No. 1 Mitchell, SW cor. NW NW sec. 11-20-28. Drlg. sh. &shls. 3,221 ft.

G. C. Grasty No. 2 Mitchell, sec. 3-20-28. Set 9⅝-in. csg. 2,001 ft.

John Kraker No. 1-C Mitchell, sec. 10-20-28. R.U.

W. M. Layton No. 2 McKellar, sec. 15-20-28. T.D. 6,025 ft.; set 5½-in. csg. 5,934 ft.; comp.; 80 B.P.D.; ¼-in. ck.

McClanahan & Feazel No. 2 Eason, C N½ NW SW sec. 12-20-28. Set 7-in. csg. 6,060 ft.; tstd. some oil 6,112 ft.; acd. with 3,000 gal.; tstd. small S.O.& G.; pld. tbg. to swb. csg.; T.D. 6,112 ft.; comp.; 50 B.P.D.; 1¼-in. ck.

I. Roosth No. 1 Capps, sec. 10-20-28. Drlg. anhy.&sh. 5,856 ft.

Texarkana Drlg. Co. No. 1 Capps, sec. 10-20-28. R.U.

Texas Canadian Oil Corp. No. 2 Thomas, NE cor. NW SE sec. 12-20-28. T.D. 6,203 ft.; perf. 7-in. csg. 6,108-78 ft.; tstd. S.W.; arng. P.B. 6,160 ft.; tstd. S.W.; set pkrs. 6,140 ft.; tstd. S.W.; cmtd. and reperf. 6,108-32 ft.; plgd. and reperfd. 6,140-50 ft.; 2,100 ft. O. I.H.; swbd. est. 20 B.P.D.; plg. tbg. to reperf.

Mrs. S. O. Thompson No. 2 Greer, sec. 11-20-28. Sat. L. 6,125-53 ft.; set 7-in. csg. 6,125 ft.; T.D. 6,155 ft.; comp.; 516 B.P.D.; 40/64-in. ck.

Nevada County

Bruce E. Wallace No. 2 Haynie, SE cor. SE NE sec. 5-14-21. Sdy. sh. 1,194-1,204 ft.; tstd. mud, S.W. and oil 1,198-1,214 ft.; 30 min.; W.O.; T.D. 1,214 ft.

Pike County

Bruce E. Wallace No. 1 Tilyeu, sec. 26-8s-24w. Drlg. 330 ft.

Pulaski County

A. L. Kitselman, No. 2 A. L. Kitselman Jr., SE SE SW sec. 2-1s-13e. Drlg. hd. bl. sl. 2,750 ft.

Union County—Shuler

Alice Sydney Oil Co. No. 2 Powledge, sec. 7-18-17. Drlg. rd. and gr. sh. 4,573 ft.

Alice Sydney Oil Co. No. 3 Powledge, SW cor. SE SE sec. 7-18-17. Drlg. rd. sh. 4,010 ft.

E. M. Jones No. 3 Marine Oil Co., NW NW SE sec. 17-18-17. Drlg. rd. sdy. sh. 7,500 ft.

E. M. Jones et al No. 2-A Murphy, sec. 19-18-17. Drlg. rd. and gry. sh. 5,935 ft.

Lion Oil Ref. Co. No. 1 Marcus, sec. 18-18-17. Drlg. sdy. sh. 3,020 ft.

Lion Oil Ref. Co. No. 3 Marine Oil Co., sec. 17-18-17. Drlg. rd. sdy. sh. 6,218 ft.

Lion Oil Ref. Co. No. 1 Mayfield, SE cor. Lot 3, Fract. NW¼ sec. 18-18-17 Top Jones sd. 7,520 ft.; top L. 7,690 ft.; T.D. 7,690 ft.

Lion Oil Ref. Co. No. 2 Mayfield, Lot 2, sec. 18-18-17. Set 10¾-in. csg. 2,275 ft.

Lion Oil Ref. Co. No. 3 Mayfield, sec. 18-18-17. R.U.

Lion Oil Ref. Co. No. 1 Edna Morgan, NE cor. Lot 5, NW sec. 18-18-17. Drlg. rd. and gry. sh. 4,856 ft.

Lion Oil Ref. Co. No. 2 Edna Morgan, sec. 18-18-17. Drlg. sdy. sh. 3,020 ft.

Lion Oil Ref. Co. No. 5-A E. Morgan, NE cor. Lot 7, SW sec. 18-18-17. Set 7-in. csg. 7,620 ft.; T.D. 7,630 ft.; comp. 1,439 B.P.D.; ½-in. ck.

Marine Oil Co. No. 5 fee, sec. 17-18-17. Drlg. rd. and gr. sh. 4,840 ft.

Marine Oil Co. No. 6 fee, sec. 17-18-17. Drlg. rd. sh. 4,022 ft.

Phillips Pet. Co. No. 3 Justiss, Lot 6, sec. 18-18-17. Drlg. sh.&L. 6,257 ft.

Phillips Pet. Co. No. 4 Justiss, Lot 6, sec. 18-18-17. Top Jones sd. 7,512 ft.; top L. 7,608 ft.; T.D. 7,700 ft.

Phillips Pet. Co. No. 2 Marine, NE cor. NW NE sec. 20-18-17. Cg. bl. asphaltic sd. 7,627 ft.

Phillips Pet. Co. No. 3 Marine Oil Co., sec. 20-18-17. Drlg. sd.&sh. 5,690 ft.

Phillips Pet. Co. No. 4 Marine Oil Co., sec. 20-18-17. Drlg. rd. and gry. sh. strks. sd. 4,742 ft.

Phillips Pet. Co. No. 5 Marine Oil Co., sec. 20-18-12. Drlg. rd. sh.&sd. 3,555 ft.

Phillips Pet. Co. No. 3 Marks, C Lot 2, SW sec. 18-18-17. Drlg. lmy. sh. 1,491 ft.

Texas Canadian Oil Corp. No. 1 Powledge, C NE NW NW sec. 21-18-17. Top Jones sd. 7,582 ft.; cg. 7,628 ft.

Union County—Other

Ark. Southern Oil Corp. No. 3-A Simmons, sec. 15-18-13. R.U.

J. R. Lockhart No. 1 Rauiston, sec. 12-17-14. R.U.; W.O.

Joe Modisette et al No. 1 Union Sawmill Co., sec. 8-18-12. R.U.

W. D. Wingfield, Tr. No. 2 Kidd Est., SE cor. NW SW sec. 15-18-13. Sd. S.D. 2,257-2,300 ft.; set 6-in. csg. 2,250 ft.; T.D. 2,300 ft.; W.O.S.R.

TEXAS

Week Ending April 23

GULF COAST FIELDS

Lockridge—Brazoria County

Gulf Oil Corp. No. 5 Carrie Baker, J. W. Hall Sur. No. 11. Drk.

Gulf Oil Corp. No. 4 Gibson, J. W. Hall Sur. Drlg. sh. 5,530 ft.

Hastings Field—Brazoria County

E. M. Hailey No. 2 Blumer, H.T.&B. Sur. No. 28. Drlg. sh. 4,630 ft.

Humble O. & R. Co. No. 1 R. B. Masterson, H.T.&B. Sur. No. 37. R.U.

Navarro Oil Co. et al No. 3-C W. F. Beers, Perry & Austin Sur. T.D. 6,060 ft.; tstg.

Producers Inv. Co. No. 5 C. H. Alexander, A.C.H.&B. Sur. No. 1. R.U.

Jay Simmon No. 5 C. H. Alexander, H. T.&B. Sur. 27. T.D. 6,082 ft.; comp.; no ga.

Stanolind O. & G. Co. No. 1 Peter McDonald, May Sloan Sur. R.U.

Stanolind O. & G. Co. No. 1 J. J. Miller, R. A. Magee Sur. R.U.

Stanolind O. & G. Co. No. 6 C. Moore, R. A. Magee Sur. Drlg. sh. 5,520 ft.

Old Ocean—Brazoria County

Harrison-Abercrombie No. 1 L. Augusburger, C. Breen Sur. Drlg. sh. 6,367 ft.

Harrison-Abercrombie No. 1 David Kaufman, C. Breen Sur. Drlg. sh. 3,830 ft.

Harrison & Abercrombie Oil Co. No. 1 Troyer and West Texas Abst. Co., C. Breen Sur. T.D. 10,304 ft.; run csg.

West Columbia—Brazoria County

Adrian Moore No. 1 Gulf fee, Geo. Tennille Sur. Spd.

Frost and Dunnan No. 1 E. S. Parker, Geo. Tennille Sur. Bldg. drk.

Mike Hogg No. 2 Varner, W. Varner Lge. T.D. 3,874 ft.; D.S. stk.

Sterling O. & R. Co. No. 2 Munson, Geo. Tennille Sur. Drlg. sh. 4,210 ft.

Texas Co. No. 20-A Abrams, George Tennille Sur. Drlg. sh. 5,956 ft.

Texas Co. No. 21 Abrams, Geo. Tennille Sur. Drlg. sh. 5,227 ft.

Texas Co. No. 22 Abrams, G. Tennille Sur. Drlg. L. 4,530 ft.

Wallace Oil Co. and others No. 1 Hargrove, G. Tennille Sur. T.D. 5,300 ft.; completing.

Sandy Point—Brazoria County

J. A. Fite No. 1 fee, Blk. 45, D. Talley Sur. T.D. 6,540 ft.; S.W. sd.; 7-in. csg. on bttm.; perf. csg. to test.

Calhoun—Heyser—Victoria County

Blanco-Buchanan No. 10 Dunwoody, A. Sisneros Sur. Drlg. 2,060 ft.

Geo. Echols No. 9 Bennett, J. E. Galban Sur. Cg. 5,420 ft.

Geo. Echols No. 12 W. H. Bennett, J. Galban Sur. Drk.

Gulf Oil Corp. No. 4-B C. P. Traylor, J. Galban Sur. Drk.

Normandie Oil Co. No. 6 Cook, A. Sisneros Sur. T.D. 6,034 ft.; tstg.

Seaport Oil Corp. No. 1 Mae Diener. Drlg. sh. 4,930 ft.

Sinclair Prairie Oil Co. No. 11 W. H. Bennett, A. Sisneros Sur. T.D. 5,512 ft., sh.; run csg.; comp.; no ga.

Cedar Point Field—Chambers County

Humble O. & R. Co. No. 1 State, sec. 95. T.D. 6,042 ft.; S.W. sd. 5,938 ft.; comp. no ga.

Standard Oil Co. of Texas and Salt Dome Oil Co. No. 2 State, sec. 119. 16-in. csg. 286 ft.; 10¾-in. csg. 1,650 ft.; drlg. sh. 4,636 ft.

Seabreeze—Chambers County

Sun Oil Co. No. 1 R. J. Barrow, A. Yarbo Sur. T.D. 8,502 ft.; rng. csg.

Sun Oil Co. No. 2 Sea Breeze Land Co., sec. 102, H.T.&B. Sur. Drlg. sh. 2,767 ft.

Clinton—Harris County

Stanolind O. & G. Co. No. 1 Velma Johnson, Unit No. 1, Reels and Trobough Sur. R.U.

Eureka—Harris County

Allamo Drlg. Co. No. 2 Laura Lackner, J. Reinerman Sur. Drlg. sh. 7,531 ft.

Jack Frazier et al No. 1 Varner Realty Co., J. Reinerman Sur. Cd. oil sd. 7,114-42 ft.; T.D. 7,750 ft.; tstg.

J. Frazier, No. 2 Vollmer & Neiman, J. Reinerman Sur. Drk.

Houston Oil Co. No. 2 Helberg-Lackner, J. Reinerman Sur. Drk.

Fairbanks—Harris County

H. C. Adams No. 2 J. P. Dawson, W. K. Hamblen Sur. Drlg. 4,780 ft.

Amerada Pet. Corp. No. 1 R. Smith, J. Waugh Sur. R.U.

Amerada Pet. Corp.-Stanolind O. & G. Co. No. 1 J. P. Dawson, W. K. Hamblin Sur. R.U.

Amerada Pet. Corp.-Stanolind O. & G. Co. No. 1 L. M. Day, G. Ayers Sur. T.D. 6,853 ft.; tstg.

Amerada Pet. Corp.-Stanolind O. & G. Co. No. 1 Foley, J. Clarkson Sur. Drlg. sh. 4,530 ft.

Amerada Pet. Corp.-Stanolind O. & G. Co. No. 1 K. S. Silberg, G. Ayers Sur. 9⅝-in. csg. 1,212 ft.; cg. sdy. sh. 6,810 ft.

Carroll Oil Co. No. 1 Ralph Johnston, J. N. Dement Sur. Drlg. sh. 1,557 ft.

Mortex Oil Co. No. 1 H. E. Ley, J. Waugh Sur. 16-in. csg. 80 ft.; drlg. sd. &sh. 6,726 ft.

E. L. Smith and Ownby Drlg. Co. No. 3 Meyers, Geo. Ayers Sur. Drlg. 2,212 ft.

H. E. Williams No. 1-A A. Vaga, G. Williams Sur. 10¾-in. csg. 1,168 ft.; cd. oil sd. 6,823-35 ft.; T.D. 6,835 ft.; tstg.

Friendswood—Harris County

Humble O. & R. Co. No. 7 Beamer, T. Choate Sur. R.U.

Humble O. & R. Co. No. 3 E. A. Grey, Perry & Austin Sur. T.D. 6,038 ft.; W. O.C.

Humble O. & R. Co. No. 2 B. H. Goodwin, W. K. Smith Sur. Loc.

Humble O. & R. Co. No. 8 E. A. Grey, Perry & Austin Sur. Drk.

Humble O. & R. Co. No. 1 Herman Hospital, T. Choate Sur. T.D. 5,790 ft.; W.O.C.

Humble O. & R. Co. No. 2 Herman Hospital, T. Choate Sur. Drk.

Humble O. & R. Co. No. 1 J. L. Jones, Perry & Austin Sur. Drk.

Humble O. & R. Co. No. 1-B Keisling & Dixon, T. Choate Sur. T.D. 6,043 ft.; recompleted due to higher gas-oil ratio.

Humble O. & R. Co. No. 4 J. J. Settegas, Perry & Austin Sur. T.D. 6,041 ft.; tstg.

Humble O. & R. Co. No. 1 E. E. Watson. Drk.

Humble O. & R. Co. No. 1-B O. P. Woodburn, A. Whitlock Sur. T.D. 6,160 ft.; tstg.

North Edna—Jackson County

Crown Central Oil Co. and H. J. Porter No. 2 Foust, Peter White Sur. Drlg. 1,210 ft.

Clam Lake—Jefferson County

Shell Pet. Corp. No. 2 McFaddin, S. A. Pace Sur. Drlg. sh. 5,375 ft.

North Cheek—Jefferson County

Magnolia Pet. Co. No. 4 J. H. Phelan, A. Stivers Sur. 18⅝-in. csg. 135 ft.; drlg. sdy. sh. 4,720 ft.

Hardin—Liberty County

Atlantic Ref. Co. No. 2 A. E. Cessna, H. B. Johnston Sur. Drlg. sh. 3,730 ft.

Atlantic Ref. Co. No. 2 W. McMurtry, H. B. Johnson Sur. T.D. 7,871 ft.; 7-in. csg. on bttm.; perf. csg. 7,828-31½ ft.; flwd. oil and S.W.; killed to recomp.

Fohs Oil Co. No. 2 Johnson-Finley, H. B. Johnston Sur. R.U.

Gulf Oil Corp. No. 1 A. B. Tullos, H. B. Johnson Sur. Drlg. sh. 6,157 ft.

Halliburton Oil Prod. Co. No. 2 Hanchy, H. B. Johnson Sur. T.D. 7,592 ft.; fsg. P.B. to sdtrk.

Shell Pet. Corp. No. 2 Hanchy, H. B. Johnson Sur. Drlg. sh. 6,510 ft.

Tide Water Associated Oil Co. No. 1 A Cessena, A. B. Hardin Sur. T.D. 7,630 ft.; perf. csg. 7,587-99 ft.; tstg.

L. W. Wickes No. 3 Tullos, H. B. Johnson Sur. Drlg. sh. 7,561 ft.

Bay City—Matagorda County

Hamman Expln. Co. No. 2 Crooke, E. Hall Sur. Top sd. 9,660 ft.; tstg.; no report.

Hamman Expln. Co. No. 2 G. M. Sloan, J. T. Belknap Sur. Drk.

McCrosky—Matagorda County

Pierce Est. No. 2 fee, I.&G.N. Sur. No.

YOU'D NEED MORE THAN A SHOTGUN

Hunting elephants with a shotgun is like cleaning out with a common bailer. The MILLER Sand Pump is the right tool for any cleanout job. It's world-wide use is proof!

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type, ¼-inch wall tubes HEAVY Type Sand Pumps.

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With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.

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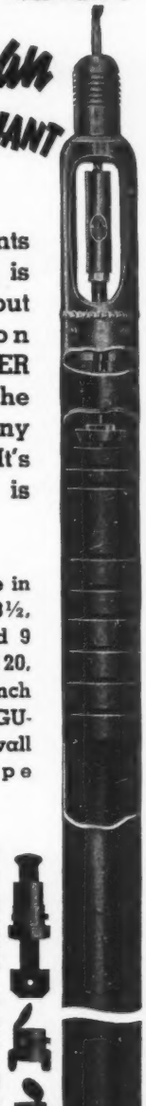
Used when tools are run and when well is shot to quickly remove loose material.

● STAR BOTTOM
Used for cutting the sand loose.

● CHISEL BOTTOM
(In Pump)
With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.



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See Page 1186 COMPOSITE CATALOG

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FOR SALE BY SUPPLY STORES EVERYWHERE

7. 10¾-in. csg. 1,081 ft.; drlg. sh. 3,710 ft.

Palacios—Matagorda County

Bennett Prod. Co. No. 1 Foley Ld. Co., L. Goodwin Sur. Drlg. sh. 3,310 ft.
Sun Oil Co. No. 1 F. K. Robeson, L. Goodwin Sur. Drk.

Orange—Orange County

W. V. Bowles No. 1 J. H. Scales, Wm. Dyson Sur. R.U.
Gulf Oil Corp. No. 1 O. Duhon, Wm. Dyson Sur. Drlg. sdy. sh. 7,130 ft.
Ryan & Thompson No. 1 Walter-McGill, Wm. Dyson Sur. T.D. 6,123 ft.; rng. csg.; top oil sd. 6,112 ft.; 7-in. csg. 6,111 ft.; flwd. P.L.O. for 6 hrs.; went dead; swbd. S.W.

Segno—Polk County

Gulf Oil Corp. No. 2 Ragan, I.&G.N. Sur 15. 9⅝-in. csg. 5,587 ft.; 20-min. D.S. T. 8,146-61 ft.; tstd. 2,400 ft. P.L.O.; 140 lbs. pres.; drlg. sd. 8,588 ft.
Humble O. & R. Co. No. 2 W. T. Carter, T. F. Pinkney Sur. Drlg. sh. 3,875 ft.
Humble O. & R. Co. No. 8-B Kirby, M. Victor Sur. Drlg. sh. 5,415 ft.

Spurger—Tyler County

Republic Prod. Co.-Houston Oil Co. No. 9 Hurd, N. Hurd Sur. T.D. 5,884 ft.; S.D., high wtr.

GULF COAST WILDCATS

Brazoria County

Pure Oil Co. No. 1 Clemons State Farm S. F. Austin 7⅛ Lge. 7⅝-in. csg. 1,955 ft.; T.D. 6,515 ft.; trying to straighten hole.

Brazos County

Pet. Heat & Power Co. No. 1 Minnie C. Dunn, J. M. Barrera Sur. T.D. 803 ft.

Burleson County

Red Bank Oil Co. No. 1 Coffield, E. Sante Sur. Drlg. chk. 5,317 ft.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.
A. A. Cameron et al No. 1 White, Solmon Brill Sur. 10¾-in. csg. 1,500 ft.; T.D. 8,505 ft.; abd.

Fort Bend County

Strake Pet. Corp. No. 1 Sugarland Industries, Wm. Stafford Sur. Drlg. sh. 4,530 ft.
O. W. Killiam No. 1 Mary Hamblen, W. C. R.R. Sur. No. 11. Drk.

Galveston County

Sun Oil Co. No. 1 Atkins, Burrell Franks Sur. R.U.
Sun Oil Co. No. 1 Cade, A. Dickinson 13⅜-in. csg. 2,218 ft.; drlg. sh. 5,042 ft.

Harris County

Chapman Mineral No. 1 O. Harris, Wm. Jones Sur. Drlg. sh. 6,933 ft.
J. Frazier No. 1 Robert Gillespie, S. Contreras Sur. Drlg. sh. 2,650 ft.
W. S. Howell No. 1 Root, A. McCormick Sur. S.D. 2,807 ft.

LEGAL

United States Department of the Interior, General Land Office, Washington, D. C. Notice is hereby given that the following lands and oil and gas deposits adjacent to or within the known geological structure of the West Red River and Middle Red River oil and gas fields, Tillman County, Oklahoma, are offered to the responsible qualified bidder of the highest bonus pursuant to Section 5 of the act of March 4, 1923 (42 Stat. 1448), and Section 17 of the act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674), at the royalty rate scale in the lease form shown in General Land Office Circular No. 1386: Unit No. 1, containing approximately 17 acres; Unit No. 2, containing approximately 24 acres; Unit No. 3, containing approximately 64 acres; and Unit No. 4, containing approximately 150 acres. Bids will be received on the separate units but two or more units awarded to the same purchaser may be included in a single lease. Specifications showing the location and description of the units may be obtained from the General Land Office, Washington, D. C., or the United States Geological Survey, Wichita Falls, Texas. The sale will be held in the office of the Petroleum Engineer, Geological Survey, Federal Building, Wichita Falls, Texas, at 12:00 noon on May 9, 1938. The successful bidder must deposit on the day of the sale a certified check on a solvent bank, or cash, for 1/5 of the amount of each bid, and file the showing of qualifications to receive a lease required by section 7 of Circular 1386. The remaining 4/5, together with the annual rental in advance, at the rate of $1 per acre, must be paid prior to the issuance of the lease. The bidders are warned against violations of the provisions of section 59 of the U. S. Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior. The remaining lands and deposits in the bed of Red River extending from the north fork of the river to the 98th Meridian, west longitude, are subject to disposition in accordance with the Order of the Secretary of the Interior fixing April 1, 1938, as the opening date. Commissioner.

West Prod. Co. No. 1A fee, Geo. B. McKinstry Sur. Drlg. sh. 2,530 ft.

Jasper County

John Mayo No. 1 Cartwright, Legrande Sur. Drk.

Jackson County

Humble O. & R. Co. No. 1 J. R. Davis, I.&G.N. Sur. No. 20, Blk. 150. Drk.
Magnolia Pet. Co. No. 1 West Ranch, Ramon Musquez Sur. R.U.

Jefferson County

I. E. Harwell No. 1 State, Gulf of Mexico T.D. 5,840 ft.; D.S. stk.; pulled in two; S.D.; may abd.
Humble O. & R. Co. No. 1 State, Gulf of Mexico, sec. 8. Topped salt 1,450 ft.; drlg. anhy. 1,541 ft.

Matagorda County

J. K. Dorrance No. 1 M. Adamcik, I.&G. N. Sur. No. 1. T.D. 7,512 ft.; fsg.
Sun Oil Co. No. 1 Fred Robbins, C. H Vandeveer Sur. T.D. 10,160 ft.; well tried to blow out; 7-in. csg. 10,150 ft.
Texas Co. No. 1 C. T. Kountze, P. J. Poole Sur. Spd.

Orange County

Texas Co. No. 1 H. J. Lutcher-Stark, Stephen Jett Sur. Drlg. 2,756 ft.

Polk County

C. E. Gates No. 2 I. O. Jackson, J. W. Abbey Sur. Drk.

San Jacinto County

J. W. Oliphant No. 1 Gibbs, Chas. Memin Sur. Spd.

Trinity County

Boone Bros.-Jordan Drlg. Co. No. 1 Crauch, Joel Clapp Sur. R.U.
M. B. Gossage No. 1 C. H. Elliott, Joel Clapp Sur. Drk.

Waller County

David MacDaniel No. 1 H. C. Leverkuhn, Lacey Pearsall Sur. 10¾-in. csg. 832 ft. drlg. sh. 3,000 ft.
Stanolind O. & G. Co. No. 1 Freeman, H.&T.C. Sur. No. 99. Drlg. sh. 5,453 ft.

S. W. TEXAS WILDCATS

Atascosa County

W. M. Allison No. 1 Nieschwietz, J. De La Garza Sur. 216. S.D. 250 ft.
G. D. Curiy and R. E. Phalon No. 1 Henritta Kresch, J. C. Dierks Sur. 10-in. csg. 18 ft.
G. C. Richardson No. 1 Fisher, Beaty & Moulton Sur. 1013. Drk.
S.W.R. Corp. No. 1 Miller, J. Neill Sur. S.D. 435 ft.

Bastrop County

J. W. Bibb No. 1 Lentz, F. Wilkenson Sur Top Austin Chalk with odor of oil 2,530 ft.; 5½-in. csg. 2,443 ft.; S.D. 2,550 ft.
R. C. Franklin No. 2 Yarrington, Jose Manuel Bangs Sur. S.D. 110 ft.
Humble O. & R. Co. No. 1 Hellsman, J. Cunningham Sur. 16-in. csg. 150 ft.; 10¾-in. csg. 1,599 ft.; cg. sh. 3,440 ft. drlg. sh. 4,669 ft.
Western Gulf Pet. Co. No. 1 Green, Samuel Williams Sur. No. 4. Drlg. sh. 2,314 ft.

Bexar County

Nami Herman No. 1 W. F. Fields, A. Bustillos Sur. T.D. 375 ft.; rng. csg.
Luling O. & G. Co. No. 1 Russell, Fernando Rodriquez Sur. Drlg. 1,026 ft.

Caldwell County

Mac-Wag-Tree Oil Co. No. 1 Roberts, W House Sur. 5½-in. csg. 2,517 ft.; T.D 2,713 ft.; swbd. well; flwd. sulfur wtr P.B. to test; perf. 1,850 ft.; swbd.; no show; abd.
Mencill Pet. Co. No. 1 J. Wallinger, Gedeon Pace Sur. S.D. 700 ft.
C. R. Richardson No. 1 Schowe, T. Maxwell Sur., Abst. 188. S.D. 629 ft.

Cameron County

Saxet Prod. Co. No. 1 Port Isabel Irrig. Co. Sur. 30. Drk.
E. B. Whittington No. 1 Gilmer, H. C. Williams Sur. No. 62. R.U.

De Witt County

Howeth et al No. 1 Tipton, Sidney Sherman Sur. R.U.

Dimmitt County

Texas & Maryland Corp. No. 1 McKnight Blk. 13, sec. 23. Base of Austin Chalk 5,201 ft.; top Georgetown L. 6,120 ft. 5½-in. csg. 7,094 ft.; T.D. 7,141 ft.; twisted off D.S.; perf. csg. 7,040-73 ft.; treated with 1,500 gal. of acd.; formation would not take acd.; tstd.: slight blowout; recvd. drlg. mud.

Duval County

Henry Brown No. 1 Guy Est., M. E. Gussett Sur. 394. Spd.
Circle Oil Co. No. 1 Graham, El Paso Irrg. & Mfg. Co. Sur. No. 571. Drlg. sh. 3,700 ft.
Corpus Christi Ref. Co. No. 1 Parr, B. S.&F. Sur. 303. D.S.T. 5,377-86 ft.; recovered 60 ft. of oil, 180 ft. S.W. on D.S.T., 5,377-86 ft.
Frank Gravis No. 1 Mcgargal, J. Boyles Sur. 10-in. csg. 500 ft.; S.D.
Mills Bennet-Stanolind O. & G. Co. No. 1-A Yates, J. Poitevent Sur. No. 321. 10¾-in. csg. 196 ft.; T.D. 4,015 ft.; abd.
Oliver Oil Co. No. 1 Lopez, R. Lopez Sur. 140. Cg. sh. 2,653 ft.
H. J. Porter No. 1 Fitzsimmons, J. Poitevent Sur., sec. 291. Drk.
Rowan & Hope No. 1 C. K. Gravis, sec 90. Top Pettus sd. 5,313 ft.; T.D. 5,800 ft.; abd.

V. G. Schimmel No. 5 Hagist, sec. 265, B.S.&F. Sur. T.D. 2,196 ft.; 7-in. csg. 2,190 ft.; pmpd. 51 B.F.P.D., 50% S.W.
Standard Oil Co. of Texas No. 1, Dolores Garcia Sur. Loc.
G. Stratton No. 1 Afflerback, H. G. Foster Sur. T.D. 1,097 ft.; 7-in. csg. 1,084 ft.
Sun Oil Co. No. 1 Ross, A.B.&M. Sur. Cg. 2,636 ft.
P. T. Wright No. 1 Hyatt, Sweden Farm Lots Subd. R.U.

Edwards County

Evans & Love No. 1 Steve Brown, Blk. 6, G.W.T.&P. Sur. S.D. 6,250 ft.

Frio County

F. L. Thompson No. 1 Davis, G.B.&C.N. G. Sur. No. 1. Spd.

Guadalupe County

Benstrasser No. 1 Eickenroht, A. Marra Esnaurrezar Sur. R.U.
Thad O'Day No. 1 Amber, James Alley Sur. Drk.

Hidalgo County

Gulf States Oil Co. No. 1 Cardenas, Juan Jose Balle Sur. 10¾-in. csg. 1,689 ft.; T.D. 8,002 ft.; 5-in. csg. 7,997 ft.; P.B. 7,963 ft.; perf. csg.
Hidalgo Prod. Co. No. 1 Daskam Corp., Porc. 45, Blk. 34. Drlg. sh. 2,486 ft.

Jim Hogg County

F. S. Adams No. 1 Martinez, sec. 623. T.D. 3,015 ft.; oil sd.; 5⅞-in. csg. 3,005 ft.; I.P. 100 B.P.D.
Humble O. & R. Co. No. 1 Anna Kelsy Bass, San Rafel Gr. Spd.

Jim Wells County

E. Calloway et al No. 1 E. O. Cook, Lavaca Grant Sur. Drk.
E. Calloway No. 1 Garcia, R. E. L. King Sur., sec. 54. T.D. 6,530 ft.; 7-in. csg. 6,140 ft.; P.B. 6,122 ft.; perf. csg. 5,950-6,000 ft.; swbd. dry; T.A.
Tom Graham Oil Co. No. 1 Martins, La-Vaca Gr. Core sh. 3,510 ft.
H. H. Howell et al No. 1 Lindsey & Reed, Lavaca Gr. Sur. T.D. 5,425 ft.; 7-in. csg. 5,421 ft.; perf. csg. 5,375-85 ft.; I.P. 177 B.P.D.; ⅛-in. ck.; T.P. 950 lbs.
Homer Presnall et al No. 1 Banker Mortgage Co., Jose Maria Garcia Sur. T.D. 3,497 ft.; P.B. 3,496 ft.; 7-in. csg. 3,497 ft.; perf. csg. 3,492-95 ft.; flwg. wash wtr.; no shows oil or S.W.; T.P. 500 lbs.; C.P. 1,075 lbs.; I.P. 3,500,000 ft. gas; ⅜-in. ck.
Southern Minerals Corp. No. 2 Talbert, LaVaca Gr., Jose Maria Garcia Sur. Drk.

Karnes County

Randon Oil Co. No. 1 Karbach, A. M. Tompkins Sur. T.D. 3,800 ft.; abd.

Kerr County

Edminston No. 1 Saul, Sur. 47. S.D. 55 ft.

Kleberg County

Pure Oil Co. et al No. 1 State Ld., Tr. 68, Laguna Madre Bay, Lse. No. 528 Dredging canal.

La Salle County

Finley S. Ewing No. 1 Pugh, E. L. Garrett Sur. Spd. and S.D.

Lee County

Eleoussa Oil Co. No. 1 Sanders, J. Vir Roeder Sur. T.D. 4,398 ft.; prep. to resume drlg.

Live Oak County

Hantho-Nelson No. 1 Geo. West, G. L. Haas Sur. Drlg. 1,410 ft.
Ray L. Martin No. 1 Adams, J. Buchannan Sur. Cg. 1,545 ft.
J. I. Newton No. 2 Geo. West, James Wright Sur. 10-in. csg. 189 ft.
V. G. Schimmel et al No. 1 Geo. West, G. L. Haas Sur. Drlg. sh. 1,380 ft.
Transwestern Oil Co. No. 1 Stephens, C. F. Simmons Subd., sec. 74. Drlg. 650 ft.
Unit Pet. Co. No. 1 Terrell, Mark Kellely Sur., Abst. 20. T.D. 4,520 ft.; abd.

McMullen County

Alabama Minerals No. 3 Gordon, A.B.& M. Sur. No. 127. T.D. 2,231 ft.; 5½-in. csg. 2,218 ft.
Duncan Drlg. Co. No. 1 Martin Henry, sec. 6. S.D. 707 ft.
Hamill and Smith No. 1 Franklin, Live Oak Co. Sch. Ld. Sur. No. 3. Drlg. sh. 102 ft.
Hear & Hall No. 1 Byrne, G. Pittich Sur. Cd. sd. show oil and gas 784-90 ft.; T.D. 975 ft.; sd.; 7-in. csg. 960 ft.; I.P. 1,000,000 ft. gas.
R. C. Lipscomb No. 1 Shiner, sec. 54, Shiner ranch. Cd. oil sd. 1,365-70 ft.; recvd. 45 ft. oily mud.
V. G. Schimmel No. 1 Jefferson O. & G. Co., C. P. Wright Sur. No. 92. Drk.
W. T. & D. Prod. Co. No. 1 Shiner, sec. 36 of Shumway Subd. T.D. 1,601 ft.; abd.

Medina County

F. A. Brown No. 1 Senne, A.C.H.&B. Sur. 105. R.U.
J. W. Cromwell No. 1 J. W. Tondre, I. J. Rogers Sur. Drlg. sh. 815 ft.
D. K. J. Oil Co. No. 1 Burrell. T.D. 2,039 ft.: S.D. after swbg. dry.
F. J. Dykstra No. 2 McMenemy, G. Petty Sur. Core sh. 2,010 ft.
Gee Hayes et al No. 1 Conrad, J. Keppler Sur. Drlg. 450 ft.
Owens and Dean No. 1 Ben Haby, Albert Kempf Sur. No. 37. Drlg. 275 ft. No report.
Taylor & Pepper No. 1 Saathoff, Peter Eichorn Sur. Drlg. sh. 310 ft.

I. R. Trentman et al No. 1 Carle Merc. Co., V. A. Johnson Sur. T.D. 1,905 ft.; 7-in. csg. 1,835 ft.; csg. split; prep. to sqze. split with cmt.; run tbg.
M. L. Walker No. 1 Zuberbulen, A. Bonamy Sur. Spd. and S.D.

Milam County

Clark & Morgan No. 1 Johnson, Juan Jose Acosta Sur. Drlg. 60 ft.
Texedo Oil Co. No. 1 Graham, Charles Cornea Sur. Logged S.O. 1,135-36 ft.; S.D. 1,760 ft.
Texedo Oil Co. No. 1 Paul Garves, C. Robertson Sur. S.D. 1,170 ft.

Nueces County

Coast Line Oil Co. No. 1 State (Redfish Bay), State Tr. No. 32. Drlg. sh. 1,564 ft.
Mills Bennett Prod. Co. No. 1 Fred Talley, sec. 10, Geo. Paul Subd. Drk.

Refugio County

H. J. Porter et al No. 1 Lambert, J. Powers and Hewitson Sur. T.D. 6,528 ft.; abd.

San Patricio County

A. L. Bob No. 2 Green, T. T. Williamson Sur. S.D. 7,100 ft.
Conroe Drlg. Co. No. 1 Kune and Whittcliff, sec. 39, Coleman Fulton Pasture Lds. R.U.
Humble O. & R. Co. No. 1 T. J. Carmody, sec. 22, Third Addn. of Taft farm lands. Drk.
Humble O. & R. Co. No. 1 Smith and Talbert, Lot 2, sec. 37. T.D. 4,836 ft.; rng. 7-in. csg.; P.B. 4,825 ft.; perf. csg. 4,820-22 ft.; tstd. 3,300 ft. oil, 400 ft. S.W. on 30-min. D.S.T.

Starr County

O. C. Borah No. 1 P. G. Garcia, Juan Salinas Sur. S.D. 810 ft.
O. C. Borah No. 2 Martinez, J. Salinas Sur. Drlg. 250 ft.; no report.
O. C. Borah No. 7 Martinez, Joaquin Salinas Sur. Drlg. 378 ft.; no report.
J. L. Collins No. 1 Francisco B. Guerra, Santa Cruz Gr. T.D. 6,609 ft.; well blew out; cutting out D.P.
G. E. Dodd No. 1 Wardner, Porc. 84. T.D. 2,164 ft.; 4-in. csg. 2,146 ft.; swbd. dry; S.D.
Henshaw-Davis No. 1 Garcia, M. M. Garcia Sur. Drlg. sh. 1,500 ft.
Sioux Oil Co. No. 7 Ricaby, Porc. 83. R.U.

Travis County

I. Ripp No. 1 Thaxton, Santiago De Valle Gr. R.U.
Texas Empire Trading Co. No. 1 E. E. Jourdan, Santigo Del Valle Gr. Drk.

Victoria County

W. V. Bowles No. 2 Robertson, T. C. Burnham Sur. Loc.

Webb County

C. C. Bonner No. 1 Lewis, W. P. Rutledge Sur. 460. S.D. 410 ft.
J. R. B. Moore No. 1 Masterson, C.C.S. D.&R.G.N.G. Sur. No. 17. Core 1,790 ft.

Wilacy County

Magnolia Pet. Co. No. 1 Armendaiz, San Juan DeCarricitos Gr., Sh. 4. T.D. 9,643 ft.; 8⅝-in. csg. 9,640 ft.; perf. csg. 9,610-20 ft.; 30-min. D.S.T. tstd. 75 lbs. W.P.; sqzd. perf.; prep. to resume drlg.
Salvieja Oil Corp. No. 2 Garcia Ld. Co. Blk. 118. T.D. 8,695 ft.

Williamson County

Marion Aldridge No. 1 Kroschewsky. T.D. 1,033 ft.; 7-in. csg. 969 ft.; S.D.
Taylor Ref. Co. No. 1 Ihlenfeldt, Willis West Sur. Drlg. L. 1,540 ft.

Zapata County

R. B. Bryant No. 1 Flores, La. Huerta Sur. T.D. 1,556 ft.; stk. D.P.; jnkd. hole; skd. drk. 45 ft. north; drlg. sh. 2,026 ft.

EAST TEXAS

(Border Counties)

Rodessa—Cass County

R. W. Norton No. 6 Moore, Meyers Sur. R.U.
Union Prod. Co. No. 2 Carter et al, Bryant Sur. Drlg. ch. rk. 2,403 ft.

Bowie County

King Oil Corp. No. 1 Watts, Geo. Brinlee Sur. Drlg. 4,313 ft.

Harrison County

Ark.-La. Gas Co. No. 1 C. M. Abney, E. Little Sur. T.D. 4,820 ft.; set 7-in. csg. 2,350 ft.; set csg. 4,836 ft.; cg. 4,906 ft.

Marion County—Rodessa

Ark.-La. Gas Co. No. 1 Hill, Gillespie Sur. Set 7-in. csg. 5,968 ft.; T.D. 6,002 ft.; comp.; 60 B.P.D.; ¼-in. ck.; T.P. 300 lbs.; C.P. 1,100 lbs.
Arkansas-Louisiana Gas Co. No. 1 Hollands, Hanks Sur. Set 7-in. csg. 6,092 ft.; T.D. 6,131 ft.; installed flow valves; tstg.
Ark.-La. Gas Co. No. 2 Holland, Hanks Sur. Set 7-in. csg. 6,045 ft.; T.D. 6,085 ft.; tstg.
Ark.-La. Gas Co. No. 1 Pitts, C. Lockhart Sur. Hill sd. 5,918-21 ft.; tstd. est. 30,000,000 ft. gas; 300 ft. of fluid in hole; top Dees 6,145 ft.; top Pettit L. 6,550 ft.; top Tr. Pk. 6,725 ft.; set 7-in. csg. 6,250 ft.; perf. 6,148-62 ft.; T.D. 7,070 ft.
Cable Tool Drlg. Co. No. 1 Henderson, U. Ewing Sur. Drlg. sh.&L. 4,988 ft.
Geo. Echols No. 2 Whitfield, Bennington Sur. Drlg. sh.&anhy. 5,420 ft.
Gulf Oil Corp. No. 2 Grubaugh, Coy Sur.

Set 5-in. csg. 6,096 ft.; T.D. 6,122 ft.
Gulf Oil Corp. No. 4-A Henderson, Bennington Sur. Set 5-in. csg. 6,024 ft.; tstg. 6,025 ft.; perf. 6,010-20 ft.
Heyser, Heard & Clardy No. 3-B Henderson, Ewing Sur. Drlg. L.&sh. 4,459 ft.
Heyser, Heard & Clardy No. 4-B Henderson, U. Ewing Sur. Drlg. L.&sh. 4,974 ft.
Holcomb & Thomason No. 2-B Henderson, Ewing Sur. R.U.
Hollandsworth Drlg. Co. No. 1 Brantley, Bennington Sur. Drlg. L.&sh. 3,396 ft.
Hollandsworth Drlg. Co. No. 1 Graham, Hanks Sur. Drlg. anhy. 5,760 ft.
Ohio Oil Co. No. 1 Mosley, Francis Sur. Set 7-in. csg. 6,038 ft.; tstg. 6,108 ft.
Phillips Pet. Co. No. 1 Beard, Bennington Sur. Drlg. L.&sh. 4,310 ft.
Rice Drlg. Co. No. 1 Haynes, Coy Sur. Set 5½-in. csg. 6,090 ft.; T.D. 6,102 ft.
Shell Pet. Corp. No. 1 Boykin, Gentry Sur. Drlg. sh.&anhy. 5,416 ft.
Shell Pet. Corp. No. 1 Goodrow, Hanks Sur. Drlg. L. 5,039 ft.
Shell Pet. Corp. No. 1 Schluter, W. Smith Sur. T.D. 6,064 ft.; set 5-in. csg. 6,060 ft.; comp.; 576 B.P.D.; ¼-in. ck.; perf. 6,051-60 ft.
Shell Pet. Corp. No. 2 Schulter, Smith Sur. R.U.
Shell Pet. Corp. No. 1 Whelan, Thos. Gillespie Sur. Set 5½-in. csg. 5,966 ft.; T.D. 5,993 ft.; swbd. S.O.; acdzd. with 2,000 gal.; flwd. 6 B.P.H.; ⅛-in. ck., with gas-oil ratio of 18,000 to 1; recmtd. csg. 5,993 ft.; acdzd. 1,500 gal.; tstg.
Union Producing Co. No. 7 Hutchinson, Coy Sur. T.D. 6,110 ft.; set 5-in. 6,087 ft.; comp.; 516 B.P.D.; ¼-in. ck.
Union Prod. Co. No. 8 Hutchinson, Coy Sur. R.U.

Panola County

Texas Co. No. 1 Claude Adams, T. Cox Sur. T.D. 5,940 ft.; set 9⅝-in. csg.; T.D. 7,369 ft.; fsg. twisted D.S.

WEST TEXAS WILDCATS

Andrews County

Atlantic Rfg. Co. No. 1 Texas Univ., sec. 26, Bk. 11, University Lands. R.U.
J. Donnelly et al No. 1 University, sec. 16, Blk. 14, University Sur. Prep. test.
Rogers & Rogers No. 1 O. B. Holt, P.S. Sur. C.O. 4,541 ft.
Seaboard Oil Corp. No. 1 Munger-Nix sec. 1, Blk. A-4, P.S.L. Sur. Re-rng. tubing 4,520 ft.
Seaboard Oil Corp. No. 1 Thornberry, sec. 8, Blk. 42-A, P.S.L. Sur. Drlg. 4,325 ft.
H. C. Wheeler No. 1 T. M. Gardner, sec 15, Blk. A-35, P.S.L. Sur. Rng. 7-in. 4,631 ft.

Bailey County

Duffey & Etz No. 1 Enochs, Tract 68 League 182, Floyd Co. School Land Sur. Tstg. 4,177 ft.

Brewster County

F. C. Dodson No. 1 Texas American Syn sec. 66, Blk. 10, G.H.&S.A. Sur. Drlg. bby tools 7,740 ft.

Cochran County

Helmerich & Payne No. 1 Westheimer & Daube, Lab. 14, Leg. 147. Drlg. 3,270 ft.
Honolulu Oil Co. No. 1-91 C. S. Dean, League 91, Lipscomb C.S.L. Sur. Loc.
Texas Co. No. 1 Mallett Ld. & Cattle Co., sec. 7, Blk. G, P.S.L. Sur. W.O. tools 4,802 ft.

Coke County

H. E. Ogden No. 1 Rawlins, sec. 390, Blk. B-21, U.R. 3,175 ft.
Barnett Pet. Co. No. 1 J. R. Mims, sec. 39 Blk. W, T.&P. Sur. S.D. 1,860 ft.

Crane County

Gulf Oil Corp. No. 4 McKnight, sec. 3, Blk. B-21, P.S.L. Sur. Loc.
Magnolia Pet. Co. No. 1 University, sec. 16, Blk. 30, University land, 3½ mi. NW of Church-Fields pool. Fsg. 3,411 ft.

Crockett County

H. W. Black & Eubank Oil No. 1 University, sec. 13, Blk. 14, University Sur. Spudded.
W. L. Bradley et al No. 1 Hoover, sec. 1, Blk. 1. P.B. 1,430 ft. to shoot.
Choate & Hogan No. 1 University, sec. 17, Blk. 14, University Sur. Comp., 104 B.O.P.D.
Choate & Hogan No. 1-J University, sec. 15, Blk. 14, University Sur. Spudded.
Moore Bros. No. 1 Perner, sec. 37, Blk 2, I.&G.N. Sur. Drlg. 9,086 ft., last report.
Short & Gillette No. 1 J. W. Owens, Jose Zunegas Sur. Drlg. 50 ft.
W. F. Yates No. 1 Hoover, sec. 6, blk. 1, G.C.&S.F. Sur. S.D. 125 ft.

Culberson County

Collins & Brewer No. 2 C. M. Caldwell, sec. 14, Blk. 42, P.S.L. Sur. Straightening hole 495 ft.
Harry J. W. Nichaus No. 1 C. M. Caldwell sec. 15, Blk. 109, P.S.L. Sur. Drlg. by two strings tools 1,492 ft.

Dickens County

J. F. Marrisey No. 1 I. J. McMahan, sec 319, Blk. 1, H.&G.N. Sur. Drlg. 2,548 ft.

Ector County

Stogner et al No. 1 Hendrick, sec. 4, Blk 43, T.&P. Sur. Drlg. 1,395 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkel. Fsg. csg. 2,950 ft.

Fisher County

Dibrell & Patton No. 1 J. B. Stribling, sec. 110, Blk. 3, H.&T.C. Sur. Cellar and pits.

Floyd County

Mills Bennett No. 1 T. Montgomery, F. J. Latham Sur., 6 mi. S of Floydada Drlg. new hole 4,408 ft., last report.

Gaines County

C. M. Cope et al No. 1 Riley, Blk. G, sec. 249, W.H.R.R. Sur. Drlg. 1,640 ft.
Eastland Oil Co. No. 1 R. C. Dunbar, sec 24, Blk. A-12, P.S.L. Sur. W.O.C. 4,483 ft.
Finley & Cherry No. 1 P. W. Dalmont, sec. 6, Blk. A-21, P.S.L. Sur. Drlg. 4,250 ft.
M. B. K. Drlg. Co. No. 1 A. L. Wasson, sec. 52, Blk. AX, P.S.L. Sur. Drlg. 4,653 ft.
Riddle & Warr No. 1 J. B. Brown et al, sec. 26, Blk. G, C.&M.R.R. Sur. Loc.

Garza County

Gulf Oil Corp. No. 1 Swanson, sec. 25, Blk. 2, H.&G.N. Sur. Drlg. 3,798 ft.

Glasscock County

O. B. Greathouse No. 1 Burns, sec. 221, Blk. 29, W.&N.W. Sur. M.I.S.T.

Hockley County

Gulf Oil Corp. No. 1 M. G. Gordon, sec. 13 Blk X, P.S.L. Sur. P.B. 5,074 ft., treated, tstg. 144 B.O. 16 hours.
Gulf Oil Corp. No. 1 Mallett Ld. & Cattle Co., sec. 6, Blk. X, P.S.L. Sur. P.B. 5,035 ft.; tstg.
Honolulu Oil Co. No. 1-77, Labor 77 League 37, Zavalla Co. Sch. Lds. Tstg. 5,051 ft.

Howard County

H. N. Harriss No. 1 Guitar, sec. 17, Blk. A, Bauer & Cockrell Sur. R.U.
Lockhart Oil Co. No. 1 Scott, sec. 86, Blk. 29, W.&N.W. Sur. Drlg. 2,181 ft.
Moore Bros. No. 1 W. P. Edwards, sec. 44 Blk. 30, T.&P. Sur. Drlg. 2,940 ft.
T. G. Shaw No. 1 H. N. Wilkerson, sec. 35, Blk. A, Bauer & Cockrell Sur. Loc.
Texas Co. No. 1 H. H. Wilkinson, sec. 32, Blk. 34, T.&P. Sur. Drlg. 2,965 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp 6 Drlg. cmt. 4,211 ft., last report.
Haymon Krupp No. 1 Briggs, sec. 24, Blk 73, Twp. 7, T.&P. Sur. U.R. 3,783 ft., last report.

Jeff Davis County

Joiner Oil Corp. No. 1 Jones-Coffield Drlg. 3,650 ft.

Kent County

Thad A. Bryant Jr. No. 1 Haggins et al, sec. 118, Blk. 1, H.&G.N. Sur. Bldg. drlg.
Thad A. Bryant, Jr., No. 1 House, sec 10, Blk. 1, H.&G.N. R.R. Sur., 6,000 ft. test. S.D. 200 ft.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co sec. 151, H.E.&W.T. Sur. Prep. drill deeper 4,415 ft.

Menard County

Forest Dev. Co. No. 1 Corbell, J. H. Gibson Sur. No. 163. Drlg. 220 ft., last report.
C. D. Haggerty No. 1 Callon, sec. 36, Jim Franz Sur. S.D. 445 ft.
Hartzell-Nown & O'Hara No. 1 Wilhelm, sec. 24, Blk. A-1795, Indianola R.R. Sur. Drlg. 270 ft. last report.

Pecos County

Cox & Moore No. 1 White & Baker, sec. 43, Blk. Z, T.C.R.R. Sur. Loc.
Ed Fairey No. 1 Trees, sec. 63, Blk. 8, H.&G.N. Sur. Fsg. 2,055 ft.
J. D. Kugle, Jr., No. 1 W. C. Jackson, sec. 120, Blk. 8, H.&G.N. Sur. Drlg. 1,815 ft.
Carl S. Leidecker No. 1 Iowa Trust, sec. 73, Blk. 10, H.&G.N. Sur. Drlg. 642 ft.
Magnolia Pet. Co. No. 1 McKee. Cg. 5,640 ft.
E. R. Minshall et al No. 1 Haynie, sec. 28; Blk. 146, T.&St.L. Sur. S.D. 455 ft.
S. Thompson No. 1 Elsinore Cattle Co sec. 54, Blk. D. G.C.&S.F. Sur. Drlg. by bailer 7,212 ft.
Trans-Pecos Oil Co. No. 1 Gallagher T.&P. Sur. Drlg. 2,100 ft.
Trans-Pecos Oil Co. No. 3-A Papham. G.H.&S.A. Sur. Drlg. 2,240 ft.
Wilcox O & G. Co. No. 1 Serf. sec. 27 Blk. 130, T.&St.L. Sur. Drlg. 4,800 ft.

Presidio County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk 12, G.H.&S.A. Sur. Drlg. 5,200 ft.

Reeves County

Grisham Hunter Corp. & N. A. Grisham No. 1 Geo. Daniel, sec. 40, Blk. 58, T.&P. Sur. Drlg. 1,695 ft.
Ohio Oil Co. No. 1 Papham, sec. 18, Blk 54, T.&P. Sur. C.O. over tools 2,380 ft.

Runnels County

E Z Oil Co. No. 1 B. Fletcher, E. C. Good Sur. D.&A. at 4,384 ft.
Stevens & Glober No. 1 Fowler, sec. 150, E.I.R.R. Sur. Drlg. 1,350 ft.

Scurry County

Coffield & Guthrie No. 1 E. E. Spears et al, sec. 130, Blk. 97, H.&T.C. Sur. M.I.M.
Robinson Drlg. Co. No. 1 Martin, sec 147, H.&T.C. Sur. S.D. 3,515 ft.
T. G. Shaw Oil Co. No. 1 First Natl. Bank Fsg. 2,420 ft. last report.

Sterling County

Loffland Bros. & Moore Bros. No. 1 D. D. Parramore, sec. 23, Blk. 2, H.&T.C. Sur. Drlg. 595 ft.
J. W. Sward No. 1 Brennand, sec. 107, Blk. 2, H.&T.C. Sur. S.D. 968 ft.

Stonewall County

Bert Fields No. 1 J. M. Lee, J. E. Pierson Sur. Spd.&S.D.
General Crude Oil Co. No. 1 J. D. Smith, sec. 371, Blk. 2, H.&T.C. Sur., 12 mi. N Rotan. Drlg. 3,745 ft.
Swanson & Parriott No. 1 H. T. Carlisle, sec. 293, Blk. D, H.&T.C. Sur. Drlg. 3,780 ft.

Terrell County

D. & S. Oil Co. No. 1 Sam Bell. S.D. 960 ft., last report.

Terry County

L. E. Holtz No. 1 P. J. Ross, sec. 6, Blk. D-14, C.&M.R.R. Sur. Drlg. 4,440 ft.

Tom Green County

Humble O. & R. Co. No. 1 Lewis & Ward law, sec. 5, Blk. 17, H.&T.C. Sur. Rng. electrical survey 7,586 ft.
Southern Cross Oil Co. No. 1 J. W. Wilson, sec. 30, Blk. H, A.B.&M. Sur. Loc.
Spinner No. 1 Reed, Mason Ferry Ranch Sur. Drlg. 3,990 ft.

Upton County

Flippen & Hancock No. 1 Shirk Est., sec. 7, Blk. 3, M.K.&T. Sur. W.O.C. 2,678 ft.
Holland & Maverick No. 1 Halff, sec. 6, Blk. A, C.C.S.D.&R.G.N.G. Sur. D.&A. 3,852 ft.
W. D. Riser et al No. 1 King Ranch Oil & Lignite Co., sec. 8, Blk. 3, M.K.&T. Sur. S.D. 730 ft.
Standard of Texas No. 1-10 University, Univ. Sur., Blk. 14, sec. 10. Drlg. 985 ft.

Val Verde County

J. F. Carter et al No. 1 Seller & Sons, sec. 34, Blk. A, I.&G.N. Sur. Spd. and S.D.

Ward County

Cities Service No. 2 Brandenburg, sec 4, Blk. 32, H.&T.C. Sur. Prep. run tubing 2,096 ft., last report.
M. J. Delaney No. 1 J. E. Cooper, H.&T.C. Sur. Tstg. 2,092 ft.
J. E. Fitzpatrick et al No. 1 H. B. Carr, sec. 125, Blk. 34, H.&T.C. Sur. S.D.R. 1,115 ft.
J. E. Fitzpatrick et al No. 1 F. K. Dyer, sec. 135, Blk. 34, H.&T.C. Sur. Drlg. 2,960 ft.
Hoss & Downey No. 1 Meyers, sec. 17, Blk. 32, H.&T.C. Sur. C.O. 1,945 ft.
Hoss & Downey No. 1 Ross Avery, sec. 36, Blk. 1, H.&T.C. Sur. S.D. 2,000 ft.
A. E. Lynch No. 1-A Johnson, sec. 8 Blk. 32, H.&T.C. Sur. C.O. 1,958 ft.
Mahree No. 1 Wilson, sec. 133, Blk. 34, H.&T.C. Sur. S.D. lost tools at 5,099 ft.
Patillo & Webster No. 1 Johnson. Tstg. 1,990 ft., last report.
O. E. Schkode No. 1 Boogher, sec. 1, Blk 32, H.&T.C. Sur. Tstg. 278 B.O.P.D.; S.I. storage full 2,078 ft.
Texas Co. No. 1-F Univ., Univ. Sur., Blk. 16, sec. 15. Drlg. 520 ft.
L. F. White et al No. 1 Rector-Monroe, E cor. sec. 3, Blk. 1, W.&N.W. Sur. S.D. 4,710 ft.

Winkler County

Ed. L. Gelder No. 1 R. D. Kessler & F. Kessler, sec. 14, Blk. B-3, P.S.L. Sur. Drlg. 1,200 ft.

Yoakum County

Bahago & Bond Oil Corp. No. 1 J. L. West, sec. 607, Blk. D, J. H. Gibson Sur. S.D.R. 4,526 ft.
Gulf No. 1 J. C. Futch, sec. 796, Blk. D. J. H. Gibson Sur. C.O. 5,170 ft.
Gulf States Oil No. 1 Graham, sec. 267, Blk. 3, J. H. Gibson Sur. Drlg. 4,499 ft.
Helmrich & Payne No. 1 S. O'Dowd, sec. 896, Blk. D, J. H. Gibson Sur. R.U. Cardwell unit 4,761 ft.

E. C. TEXAS WILDCATS

Angelina County

J. C. Bonham No. 1 Cameron Lbr. Co., E. Miller Sur., 3 mi. SE of Zavalla. S.D. 1,630 ft.
J. C. Bonham No. 3 Cameron Lbr. Co., E. Miller Sur., 3 mi. SE of Zavalla. S.D.W.O. 621 ft.
Ginter Bros. No. 4 Copes Heirs, J. Morin Sur., 3 mi. S of Dibol. Clearing loc.
B. L. Hoffman No. 1 Jones, W. W. Hales Sur., 8 mi. SW of Huntington. Drlg. 30 ft.

Cherokee County

Bunn Drlg. Co. No. 1 C. Bounds, W. H. Walters Sur., 2½ mi. SE of Lone Star. Prep. run csg. 4,015 ft.
Commerade Oil No. 1 J. M. King, W. Bartie Sur., 5 mi. W of Rusk. M.I.M.

Dallas County

Markraley No. 1 R. S. Morris, C. Gibbs Sur., 2 mi. S of Grand Prairie. Pits.
Plaza Oil Co. No. 1 Davidson, Marchants Sur., 1 mi. NW of Seagoville. S.D. 2,257 ft.

Gregg County

Humble O. & R. Co. & Gulf O. Corp. No. 1 E. Robertson, M. Mann Sur., 2½ mi NW of Longview Trinity test. El. 279 ft.; drlg. 9,692 ft.

Henderson County

Humble O. & R. Co. No. 1 Burns, J. G. Thompson Sur. Clearing loc.
Jones-Mallory No. 1 A. Mallory, T. S. Mitchell Sur., 6 mi. SW of Mabank. S.D. 107 ft.
Tyler & Smith No. 1 Phoenix Rity. Co., A. L. Adams Sur., 4 mi. S of Mabank. Loc.

Houston County

Peyton Bros. No. 1 J. N. Daniels, J. M. Procella Sur., ½ mi. N of Procella. Recmtg. sur. csg.; T.D. 5,820 ft.
Sun Oil Co. No. 1 R. S. and H. H. Daily, J. G. Thompson Sur., 3 mi. SE of Navarro Crossing. Drk.

Limestone County

J. S. Cosden, Jr. No. 1 J. J. Bower, J. Breeding Sur., near Prairie Hill. Drlg. 800 ft.
Stanolind O. & G. Co. No. 1 T. Norris, in Thresher Sur., 5 mi. N of Kosse; 6,500 ft. test; elev. 528 ft.; D.&A.; T.D. 9,951½ ft.

McLennan County

Chapman & Kahn No. 1 Carl Hartsman, B. C. Walters Sur., 1½ mi. S of McGregor. S.D. 1,326 ft.
Kilgore No. 1 J. M. Marrs, J. S. Rutland Sur., 2 mi. S of Bosque. S.D. 1,325 ft.

Navarro County

G. W. Gibson No. 2 Dr. J. H. Edgar, M. Meazel Sur., 3½ mi. S of Richland. S.D. 2,200 ft.
G. W. Gibson No. 3 J. H. Edgar, M. Meazel Sur., 2½ mi. S of Richland. Drlg. 2,200 ft.
Mrs. Jane Robinson No. 1 Fortson Bros., Eli Smith Sur., 5 mi. NE Corsicana. Prep. fsg. 2,635 ft.

Red River County

Walters et al No. 1 Phamplin, W. Moore Sur., 3 mi. SE of Kanawha in NW part of county. R.U.

Smith County

H. L. Hunt et al No. 1 S. H. Bradly, T. P. Payne Sur., 10 mi. E of Tyler at Chappel Hill. Drlg. 6,659 ft.

Trinity County

Bilinoski et al No. 1 Trinity State Bnk., B. F. Wright Sur., 2 mi. S of Trinity. S.D. 3,500 ft.
Boone & Jordan No. 1 U. S. Crouch, Joel Clapp Sur., 7 mi. N of Trinity. Drk.
Gassage et al No. 1 Mrs. C. H. Elliot, Joel Clapp Sur., 6½ mi. N of Trinity. Drk.

Upshur County

E. J. Dupree No. 1 W. A. Lawrence, R. Polly Sur., 4 mi. S of Gilmer. Drlg. 4,202 ft.
Tom Hunter and American Liberty No. 1 J. P. Carter, J. H. Fields Sur. Drlg. 8,546 ft.

NORTH TEXAS WILDCATS

Archer County

Adams O. & G. Co. No. 1 C. Moer, sec. 21, C.&P. Sur., Blk. 3. Drlg. 1,820 ft.
Burns & Omohundro No. 1 Dr. A. B. Edwards, Blk. 44, L. P. Hunt Subd., 5,300-ft. test. Loc.
Camp Drlg. Co. No. 1 H. Harmel, sec. 2,460, T.E.&L. Sur., 4,000-ft. test. Spudded.
Fain-McGaha Oil Corp. No. 1 R. W. Fuller, Blk. 1, H.&T.C. Sur., 6,000-ft. test. Drlg. 2,392 ft.
Hines & Hancock No. 1 J. L. Anderson, Blk. 23, Anderson ranch, 4,000-ft. test. R.U.R.
Kilgore-Luginbyhl & Johnson No. 1 Ford, T. M. Cecil Sur. A-982. 4,500-ft. test; S.D. 4,067 ft.
Lacreta Pet. Co. No. 1 L. H. Farmer, W. C. Winters Sur. A-663, 4,000-ft. test. Drk.
Reno Oil Co. No. 10 H. Wilmut A, sec. 4, S.P.R.R. Sur. A-1044. Drlg. 3,911 ft.; S.S.O. 3,760-66 ft.
Shappell Oil Co. No. 1 Grace Bell, Blk. 27, Clark & Plumb Sur., 3,700-ft. test. R.U.R.
C. W. Snoddy No. 1 Jones, T. Freeman Sur. A-134. S.D.O. 4,500 ft.

LEGAL

U. S. Department of the Interior, U. S. Land Office, Cheyenne, Wyoming. Notice is hereby given that the following lands are offered to the responsible qualified bidder of the highest bonus per acre for leasing, pursuant to section 17 of the act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674) at the royalty rate scale in the lease form shown in circular 1386: Unit No. 1, lot 4 (NW¼ NW¼) Sec. 2, 40.15 acres; Unit No. 2, SW¼ SW¼ Sec. 4, 40 acres; and Unit No. 3, NW¼ SW¼ Sec. 8, 40 acres, all in T. 35 N., R. 65 W., 6th P.M., in the Lance Creek oil and gas field, Wyoming. Bids will be received on the separate units but two or more units awarded to the same purchaser may be included in a single lease. Said units will be offered for sale at public auction at this office at 10:00 A.M. on May 16, 1938. The successful bidder must deposit on the date of the sale, with the Register of the Cheyenne land office, certified check on a solvent bank, or cash, for one-fifth of the amount bid by him, and file the showing of qualifications to receive a lease, required by section 7 of General Land Office circular 1386. The remaining four-fifths, together with the annual rental in advance, at the rate of $1 per acre, must be paid prior to the issuance of the lease. The bidders are warned against violations of the provisions of section 59 of the U. S. Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids in the discretion of the Secretary of the Interior. Register.

Thurman & Lipscomb No. 1 L. F. Wilson, Blk. 22, A.T.N.C.L. Sur., 4,000-ft. test. Drlg. 3,490 ft.

Baylor County

D. S. Kelly No. 1 W. T. Waggoner, sec. 54, T.&N.O. Sur. S.D.O. 1,785 ft.
Riddels, Pipes & Holcomb No. 1 W. H. Nichols, Jr., sec. 117, B.B.B.&C. Sur. A-85. Loc.
Wilcox O. & G. Co. No. 1 W. H. Portwood, sec. 3144, T.E.&L. Sur. Loc.

Clay County

Walter Gant No. 1 Bryant Edwards S. C. Beldon Sur. A-12, 6,000-ft. test. Drlg. 4,713 ft.
Healdton O. & G. Co. No. 1 Wallace, Belcher Subd. S.D.O. 5,600 ft.
W. P. Luse No. 1 Hapgood, sec. 68, Marion Co. Sch. Ld. 5,000-ft. test. Bldg. drk.; T.D. 4,100 ft.
Joe Rogers No. 1 C. P. Davis, Blk. 6, Montague Co. School Land Sur. A-307, 4,500-ft. test. Spdg.
Wood Pet. & Roy. Corp. No. 1 I. H. Kempner, Blk. 44, Bosque Co. Sch. Ld. Sur. A-10. S.D. 2,020 ft.

Cooke County

Sinclair Prairie Oil Co. No. 1 J. M. Best, T. Toby Sur. A-1054. Drlg. 3,350 ft.
Sunset Oil Co. No. 1 J. T. Donald, S.P. R.R. Sur. A-971 3,500-ft. test; S.S.O. 2,473-94 ft.; S.D.O.

Foard County

Texas Co. No. 16 Johnson, sec. 37, S.P. R.R. Sur. Drlg. 3,330 ft.

Jack County

Noah Daves No. 1 K. D. Baker, sec. 2709, T.E.&L. Sur., 4,000-ft. test. Drlg. 660 ft.
Harper Pet. Co. 1 Mary E. Norman, A. Pearson Sur. A-1304. Drlg. 1,600 ft.
R. S. Luke No. 1 H. M. Simpson, J. W. Abbey Sur. A-11, 3,250-ft. test. Drlg. 2,810 ft.
Taubert & McKee No. 1 R. H. Eatherley, G.C. Stanley Sur. A-1653. T.D. 1,640 ft.; U.R. 7-in. 1,440 ft.

Knox County

King & McCurdy No. 1 N. Rogers, sec. 3, H.T.&B. Sur., 4,000-ft. test. Drlg. 1,370 ft.

Montague County

H. H. Powell No. 1 Arch Durham, W. J Wagoner Sur. A-936. S.D. 822 ft.
E. J. Ruwaldt No. 1 J. A. Hoffman, T. Puckett Sur. A-607. Drlg. 1,710 ft.
J. W. Sorrell et al No. 1 J. E. Walthall Sam H. Smith Sur. A-662. Drlg. 3,630 ft.

Wichita County

C. W. Boller No. 1 S. Y. Collins, Charles Roberts Sur. A-540. 6⅝-in. 3,855 ft.; brkn. sdy. L. and O.S. 3,860-3,900 ft.; testing.
Geo. W. Cooper No. 1 Parker, sec. 13, H.&G.N. Sur. Spudded.
M. T. Flanagan No. 1 Texas L. & M. Co., J. McColl Sur. A-194. 6⅝-in. 3,920 ft.; tstg. S.S.O. 4,050-60 ft.
E. J. Stump No. 1 M. P. Bishop, L. Netherly Sur. A-240 S.D.O.: S.I. 3,895-3,997 ft.; shot 350 qts. 3,884-3,970 ft.; flowed 10 min. after shot and bridged; testing.
E. J. Stump No. 1 F. C. Dodson, J. Deck Sur. A-52. R.U.R.

Wilbarger County

Loyd H. Brown No. 1 W. T. Waggoner, sec. 33, Blk. 6, H.&T.C. Sur. Running 5½-in. csg. to test L.S.O. 4,237-38 ft.
N. Gilbert No. 1 McGill, sec. 3, Blk. 9, H.&T.C. Sur. S.D.O. 3,950 ft.
Phillips Pet. Co. No. 1 W. T. Waggoner "Barger," sec. 11, H.&T.C. Sur., Blk. 14. Drlg. 3,509 ft.
Republic Nat. Gas Co. No. 1 W. T. Waggoner, sec. 2, H.&T.C. Sur., Blk. 4, 4,000-ft. test. Drlg. 2,400 ft.

Young County

Cosden Oil Co. No. 1 Price, Y.C.S.L. Sur. No. A-1285. Drlg. 1,160 ft.
Cosden Pet. Corp. No. 1 D. R. Sewell B, J. Bray Sur. A-1949. Spud.; S.D.
Howard Pet. Co. No. 1 G. R. Stewart, sec. 84, C.S.L. Sur. Drlg. 5,407 ft.
Danciger O. & R. Co. No. 1 H. C. Shanafelt, sec. 11, A.B.&M. Sur. A-1369. S.S. O. 2,776-81 ft.; tstg.
Kadane-Griffith No. 1 Sanders, sec. 1989, T.E.&L. Sur., G.L. 4,201-35 ft.; tstg.
A. N. Munhall No. 1 Ed Johnson, A. McLennan Sur. A-185. Drlg. 3,860 ft.

RANGER (CENTRAL TEXAS) DISTRICT

Callahan County

Joe Gallagher No. 1 W. T. Harris, 200 ft. from S line, 1,050 ft. from E line sec. 347, G. W. Denton Sur. 2,000-ft. test, 5 mi. N Oplin. M.I.M.
J. H. Howell No. 1 E. I. Vestal, 1,149 ft. E line, 1,000 ft. N line, Jesse Dyson Sur., 2 mi. NE Cross Plains, rotary to 4,000 ft. Surf. to 100 ft.; S.D. at 600 ft.
J. C. Jackson et al No. 1 Thompson, 2 mi S. Eula, sec. 30, B.B.B.&C. Sur. S.D. 1,803 ft.; drlg. 2,370 ft.
Wittmer Oil & Gas Properties, Inc., No. 1 R. D. Williams et al, 300 ft. from N line, 467 ft. from W line sec. 2,269, T.E.&L. Sur., 2 mi. NE Putnam, 4,500-ft. test. Set 12½-in. at 1,048 ft.; show oil 1,795-1,803 ft.; set 10-in. 2,556 ft.; drlg. 2,655 ft.

Coleman County

S. M. Devine et al No. 1 Masterson, 2 mi. W of Burkett, Asa Wickson Sur. T.D. 1,836 ft.; prep. rg. csg.
Garrett Oil Co. No. 1 W. S. Smith et al., 4 mi. SE Coleman, J. Thiele Sur. 2,300-ft. test; drlg. 1,300 ft.

Comanche County

N. D. Gallagher et al No. 1 Mrs. B. I Terry, Desdemona pool, N. H. Kuykendall Sur. S.O. in Ellenburger; 5 gal. sulfur and salt water on D.S. test 4,917 ft.; tstg. 4,955 ft.

Eastland County

G. D. Chastain et al No. 1 Weddington, 4 mi. N. Cisco, sec. 496, S.P.R.R. Sur. T.D. 4,079 ft.; plugging back.
Dobbs Oil Co. No. 1 Greer, J. E. Hardy Sur., Ellenburger test. Drk.
Hayner, Reaves & Hose No. 1 P. L. Larkin, 3 mi. NW Rising Star, 912 ft. from W line, 546 ft. from S line, NW¼, sec. 40-2, E.T.R.R. Sur. S.O. 2,525-53 ft. and 2,574-95 ft.; drlg. 2,600 ft.
Nell A. Moore No. 7 Holcomb Heirs, 970 ft. from W line and 600 ft. from N line, SW¼ 1-4, H.&T.C. Sur. Loc.

Fisher County

Forest Dev. Corp. & Daube No. 1 L. G. Bennett, 660 ft. from N & E lines, sec. 51-3, H.&T.C. Sur. Rotary to 4,500 ft.; 3 mi. SW of Rotan.
Owens-Snebold & A. C. Varner No. 1 J. H. Milsap, 3,500-ft. wildcat, 2 mi. NW McCaulley, 330 SL 330 WL, sec. 61-2, H.&T.C. Sur. Drlg. 1,230 ft.
Tom C. Patton, Inc. No. 1 John B. Stribling, 660 ft. from S and E lines, sec. 110-3, H.&T.C. Sur. Spd. to 100 ft., S.D.
Shell Pet. Corp. Corp. No. 1 J. H. Vaughn, 330 ft. from N and E lines, sec. 20s-3, H.&T.C. Sur., 4,000-ft. test.

Haskell County

Fain-McGaha Oil Corp. No. 1 T. G. Hendrick, C W½ sec. 104, Indianola Ry. Sur. Set 150 ft. of 12½-in. S.S.G. 1,620-30 ft.; fsg. parted 8-in. at 1,670 ft.
J. W. and A. E. McMillan No. 1 A. E. Pardue, 440 ft. from N and W lines, S½ M. Collum Sur. No. 4 A-685. Rotary to 3,500 ft.; drlg. 2,250 ft.

Jones County

Brown Eagle & C. J. Kleiner No. 1 Sullivan Heirs, 330 ft. S&E of 200-ac. tract in S. Andrews Sur. 191. Drlg. 450 ft.
H. G. Daniels & Dale H. Dorn No. 1 F. T. Moore, 220 ft. from W line, 330 ft. from S line, Moore 115 ac. in John Winter Sur. 138. Abd.; H.F.W. at 2,485 ft.
W. W. Fondren No. 1 Cox-Manley, 330 ft. from S line and 330 ft. W of C of S line of C. B. Sheppard Sur. 70. Drlg. 1,937 ft.
Mack Hayes and Montour Oil Co. No. 1 Chittenden, 7 mi. SE Hamlin, Subd. 18, McMullen & McGloin Sur. 337. Drlg. 3,010 ft.
L. A. Hedrick No. 1 W. D. Baker, 220 ft. from N&W lines 3½ NE¼ sec. 36-O.A.L. U.R. 8-in. 1,570 ft.
Humble No. 1 I. N. Irwin, 330 ft. from S and W lines sec. 48-18, T.&P. Sur., 1½ mi. E Noodle Creek pool. Cored sat. 2,550-67½ ft.; set 6-in. 2,550 ft.; swabbed 18 B.O. and 72 B.W. in 3 hrs.; plugged back cement; recmtg. thru 2-in. tubing.
Humble No. 1 R. B. Spencer, 330 ft. from S and E lines, NE¼ sec. 195, B.B.B.&C. Sur., West Avoca outpost. Drlg. plugs 3,192 ft., top lime.
Iron Mountain No. 1 D. J. Herbst, 5 mi. E Hamlin, 330 ft. from N and E Sub 18, Austin Williams Sur. 339. Set 10-in 2,245 ft.; wtr. 2,900-05 ft.; drlg. 2,955 ft.
F. M. Loop No. 1 W. T. Young, 330 ft. from N line, 253 ft. from E. L. Young 276-ac., D. Bustillos Sur. 189. Loc.
F. W. Martin No. 1 B. N. Herndon, 330 ft. from S and W of NW sec. 1, M.E.&P. Sur. Drlg. 2,700 ft.
F. W. Merrick et al No. 1 C. A. Cox, cent. Cox 119-ac. tr., J. H. Hughes Sur. No. 201. U.R. 6-in. 2,072 ft.
B. H. Roth No. 1 D. A. Kinney, 4,000-ft. test, 330 ft. from S and E of NW sec. 7-4, H.&T.C. Sur. Drlg. 3,640 ft.
Shaheen Oil Co. and Big Six No. 1 P. L. Telford, 220 ft. N and W lines, E½ SW¼ sec. 49-15, T.&P. Sur. Fsg. 1,675 ft.
Jay Simmons No. 1 W. T. Young, 302 ft. from S, 342 ft. from E, 37½-a. lease, D. Bustillos Sur. 189. Drlg. 1,700 ft.
Stanton & Miller No. 1 Gaither, 4½ mi. N of Anson, sec. 38, B.B.B.&C. Sur. S.D. 2,180 ft.
Joe A. Worsham et al No. 1 J. H. Commons, 330 ft. from E line, S½ E 80-ac. Subdiv. 8, A. W. Hill Sur. No. 4. U.R. 6-in. to 2,643 ft.; H.F.W.

Nolan County

Hantho-Nelson, Inc., No. 1 J. H. Withers, C SW¼ sec. 65-21, T.&P. Sur. Wildcat to drill 4,000 ft. Spd. to 200 ft. W.O. rotary.

Palo Pinto County

W. H. Clement No. 1 Federal Life Ins. Co., 2 mi. W Mineral Wells, sec. 51, T.&P. Sur., Blk. A (E of B). Drlg. 1,710 ft.

Shackelford County

Danciger No. 3 J. E. McCown, 300 ft. from N and E lines, S½ SE¼ sec. 158, B.B.B. &C. Sur. Drlg. 1,320 ft.
Joe DeGrazier No. 1 Harbough, E cen part of county, sec. 1,563, T.E.&L. Sur. 4,500-ft. test; H.F.W. 2,185-95 ft.; drlg. 2,350 ft.
Forest Dev. Corp. No. 1 T. G. Hendrick, NW cor. of county, 2,600 ft. from N line and 4,300 ft. from W line of sec. 1, A.B.&M. Sur. Est. 15,000,000 ft. gas per day 1,603-17 ft.; gas 1,662-65 ft., incr. est. 4,000,000 ft., 1,680-85 ft.; est. 1,000,000 ft. 1,804-06 ft. and 1,810-15 ft.; S.S. oil and wtr. 1,864 ft.; inc. wtr. 1,880-82 ft.; set 6-in. to 2,620 ft.; wtr. 2,755 ft.; top Palo Pinto 3,154 ft.; U.R. 5-in.
Ungren & Frazier No. 1 J. S. McKeever, 306 ft. from W line, 354 ft. from N line, NW¼ SW ¼ sec. 14-3, H.&T.C Sur. 3,500-ft. test.; gas at 1,475 and 1,492 ft.; set 10-in. 1,539 ft.; est. 100,000 ft. gas 1,745 ft.; set 10-in. to 1,907 ft.

Stephens County

Danciger Oil Ref. Co. No. 1 Mrs. Allen Copeland, 8 mi. SE Ivan, 1,196 ft. from E line and 350 ft. from S line of sec. 1, M.E.P.&P. Sur. P.B. to 3,304-55 ft.; shot 40 qts.; to acidize.
Graham, Hafner, Lane & Inman No. 1 J. N. Yocum, 5 mi. SE of Frankell, 250 ft. from N and E lines of farm or approx. 2,525 ft. from E line and 1,406 ft. from S line of John R. Carter Sur Trt. 1,000 gal acid 3,575-90 ft.; est. 25-50 bbls. per day; drlg. 3,455 ft.
L. C. Little No. 1 R. M. Rogers, NE¼ of county, 150 ft. from E line and 1,980 ft. from S line of sec. 28, T.&P. Sur. Blk. 5. Tstg. after 10,000-gal. acid 3,960-4,055 ft., 3,000,000 ft. gas; sulfur wtr. 4,490 ft., T.D.; testing gas at 3,837-41 ft.
Lone Star Gas Co. No. 5 R. W. Brooks, 400 ft. E and S of C of sec. 54-7, T.&P. Sur. Ellenburger test 2½ mi. N of Van Parmer pool. Drlg. 700 ft.
G. Willard Rich No. 1 J. W. Andrews, 330 ft. W line, 450 ft. S line, NW¼ sec. 39-7, T.&P. Sur. Set 12½-in. at 1,620 ft.; drlg. 2,350 ft.

Stonewall County

Bert Fields No. 1 R. P. Pierson, C of E 80-ac., E. A. & S. M. Lee Sur. Abst. 817. Loc.
General Crude Oil Co. No. 1 J. D. Smith, SW cor. county, 330 ft. from S and E lines of sec. 371, H.&T.C. Sur., Blk. 2. Set 13⅜-in. 2,119 ft.; set 10-in. at 3,508 ft.; cmt. 150 sacks; drlg. 3,837 ft.
F. B. Parriott No. 1 H. T. Carlile, 330 ft. from S line, 990 ft. from E line, SW¼ NE¼ sec. 293, Blk. D, H.&T.C. Sur., rotary to 5,500 ft., 6 mi. NW of Swenson. Set 8¼-in. at 3,345 ft.; cable drlg. 3,850 ft.

Taylor County

Bert Fields et al No. 1 Sears, sec. 223, Blk. 64, H.&T.C. Sur. Drlg. 3,492 ft.
Wichita Prod. Co. No. 1 J. H. Parramore, 592 ft. from E line, 400 ft. from S line, SW¼ sec. 81-14, T.&P. Sur. Drlg. 1,600 ft.

Throckmorton County

Jones & Stasney No. 1 C. T. Brockman, 330 ft. S line, 330 E line sec. 95, Comanche Indian Sur. Drlg. 1,300 ft.
Morris & Spoonts No. 1 Alden Bros., NW cor. county, 1,350 ft. from E line and 5,210 ft. from S line of Raymond Sanches Sur. A-248. Drlg. 1,178 ft.
White & Duncan No. 1 Reynolds Cattle Co., 330 ft. from S and W lines, NE¼ sec. 83, Comanche Indian Reservation. U.R. 10-in. 1,285 ft.
Henry Zweifel No. 1 J. H. Lee, 4 mi. NE of Woodson, 930 ft. from E line and 2,011 ft. from S line of J. A. George Sur. Cg. 2,990 ft.

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.

Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Santa Paula*	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	...	...	...	$.80	$.76	$.76	$.77	$.78	...	...	$.70	$.70	$.70	...	...	$.70	...
15-15.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	...
16-16.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	...	...	...	.82	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	...	...	...	.85	.76	.78	.77	.78	...	$.70	.74	.74	.71	$.70	...	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	...	...	...	.88	.78	.82	.77	.80	...	.70	.78	.78	.72	.70	...	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	...	...	...	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	...	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	...	...	...	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	...	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	...	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	...	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	...	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	...	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	...	1.02	.95	...	.89	.99	.86	.88	1.01	.98	.90	.83	...	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	...	1.05	.98	...	.92	1.03	.90	.91	1.06	1.02	...	...	...	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	...	1.10	1.03	.88	...	...	1.02	...	.96	1.06	.95	.95	1.10	1.06	...	...	...	.95	...
28-28.9	1.14	1.10	.90	1.14	1.15	...	1.14	1.07	.90	...	...	1.06	...	.99	1.10	.99	.99	1.15	1.10	...	...	...	.97	...
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	...	...	1.09	...	1.03	1.14	1.03	1.02	1.20	1.14	...	...	...	.99	...
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	...	...	...	1.07	1.17	1.08	1.06	1.25	1.18	...	...	...	1.01	...
31-31.9	...	...	...	...	1.24	Pipe	1.24	1.22	.97	Ship	...	...	...	1.11	1.21	1.12	1.09	1.29	...	...	...	...	...	...
32-32.9	...	...	...	...	1.27	Line	1.27	1.27	1.00	...	...	...	...	1.14	1.25	1.16	1.13	1.34	...	...	...	...	...	...
33-33.9	...	...	...	...	...	...	...	1.32	...	$1.28	...	...	...	1.18	1.28	1.20	1.17	1.38	...	...	...	$1.19	...	...
34-34.9	...	...	...	...	...	...	...	1.37	...	1.32	...	...	...	1.22	1.32	1.25	1.20	...	...	...	...	1.23	...	...
35-35.9	...	...	...	...	...	...	...	1.42	...	1.35	...	...	...	1.25	...	1.29	...	...	...	...	...	1.27	...	...
36-36.9	...	...	...	...	...	...	...	1.46	...	1.39	...	...	...	1.29	...	1.33	...	...	...	...	...	1.31	...	...
37-37.9	...	...	...	...	...	...	...	1.51	...	1.43	...	...	...	1.32	...	1.37	...	...	...	...	...	1.35	...	...
38-38.9	...	...	...	...	...	...	...	1.56	...	...	...	...	...	1.36	...	1.42	...	...	...	...	...	1.39	...	...
39-39.9	...	...	...	...	...	...	...	1.61	...	...	...	...	...	1.40	...	...	...	...	...	...	...	1.43	...	...
40-40.9	...	...	...	...	...	...	...	1.66	...	...	...	...	...	1.43	...	...	...	...	...	...	...	...	...	...

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 18.9 degrees, 80 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 75 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1938 High	1938 Low	Week ending Apr. 23 Sales	Week ending Apr. 23 High	Week ending Apr. 23 Low	Week ending Apr. 23 Close	Stocks—	Total shares outsanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
72½	57	1,900	67	63	67	Amerada Corp.	788,675	N.P.	50cQ	4-30-38	$2.00	114⅞	51½	125½	75
24	17¾	4,200	22¼	20¾	22	Atlantic Refining	2,663,999	$25	25cQ	3-15-38	1.00	37	18	35⅛	26⅝
19	12½	5,900	17⅝	15⅝	17⅜	Barber Co.	387,149	$10	75c	12-16-37	1.00	43⅜	10⅛	38½	21
16⅝	10⅛	18,000	14¾	13¼	14⅜	Barnsdall Oil Co.	2,250,344	$5	25cQ	5-2-38	1.00	35¼	10	28¼	14⅛
9⅝	5⅛	No sales	..	..	..	Columbia Gas & Electric Co.	.....	....	....	.....	....	..	..	..	..
10½	7	24,900	9⅝	8⅝	9¼	Consolidated Oil Corp.	13,919,417	N.P.	20cQ	5-14-38	.90	17⅞	7	17¼	11½
34⅜	21¼	9,300	29½	27¼	29	Continental Oil of Delaware	4,682,583	$5	25cQ	3-31-38	1.50	49	24	44⅞	28⅛
8⅜	5	7,400	7⅜	6⅝	7⅛	Houston Oil (new)	1,098,618	$25		10-17-30	....	17⅝	4¾	13⅞	6⅜
22⅝	12¼	3,800	18⅜	17	18	Mid-Continent Petroleum	1,855,912	$10	25c	6-1-38	1.50	35⅜	14	30⅞	17¼
17⅜	11	1,300	14¾	13	14⅛	Mission Corporation	1,399,345	N.P.	25c	12-24-37	1.25	34	15	29⅞	16⅜
23	14⅛	7,200	19⅞	17½	18½	National Supply	382,591	$25	$2 pf.‡	12-22-37	(‡)	41⅜	17⅝	75½	19⅞
14⅞	10	7,700	13	12⅛	12¾	Ohio Oil Co.	6,563,377	N.P.	50cSA	12-15-37	1.00	22⅞	9	18	12⅛
15⅞	10¼	600	12¼	11¼	11½	Pacific Western Oil	1,000,000	N.P.	75c	12-15-37	.75	29¾	11¾	23½	11¾
9¼	7	No sales	..	..	..	Pan American Pet. & Trans.	4,702,945	$5	$1 •	12-21-37	1.00	17⅛	7	20⅝	12¼
42½	27¼	10,600	37⅛	33⅝	35⅝	Phillips Petroleum	4,449,052	N.P.	50cQ	3-1-38	2.75	64	30⅛	52⅝	38⅛
20	15	2,900	19⅜	18¼	18¾	Plymouth Oil Co.	1,029,800	$5	35cQ	9-30-37	1.65	29⅞	13	27¾	11⅞
13½	8½	14,200	11⅜	10⅜	11¼	Pure Oil Co.	3,281,120	N.P.	25c	12-1-37	.25	24⅝	8¾	27⅞	16
7⅞	5	6,300	6⅜	5⅞	6	Richfield Oil Corp.	3,285,120	N.P.	25c	12-24-37	.25	6½	4⅛	..	..
27½	15½	3,000	22⅜	19¼	21	Seaboard Oil of Delaware	1,224,283	N.P.	25cQ	6-15-38	1.00	54⅛	16	44	30⅛
18¼	10	2,800	14½	13¾	14	Shell Union Oil	13,070,625	N.P.	50c	12-20-37	1.00	34¾	14⅞	28¼	14¾
34¾	18½	2,400	26½	23¾	25⅛	Skelly Oil	1,003,949	$15	50c	12-15-37	1.50	60⅝	26½	47⅜	19⅛
16⅜	10¾	27,000	14⅜	13⅛	13⅞	Socony-Vacuum	31,151,071	$15	25c	3-15-38	.80	23¼	13	17½	12½
33⅞	25⅛	8,200	31⅞	29¼	30	Standard Oil of California	13,014,754	N.P.	35cQ†	3-15-38	2.00	50	27⅛	47⅝	35
35½	24¾	10,700	32	30½	31⅝	Standard Oil (Indiana)	15,267,030	$25	25cQ	3-15-38	2.30	50	26½	48½	32¾
35½	32¼	No sales	..	..	..	Standard Oil of Kansas	112,837	$10	$5	12-20-37	5.00	43	30⅝	31	25
54⅛	39¾	19,100	49½	46⅝	48⅞	Standard Oil of New Jersey	25,856,081	$25	$1.25SA†	12-15-37	2.50	76	42	70⅜	51⅛
57⅞	45	700	49	49	49	Sun Oil	2,316,484	N.P.	25cQ	6-15-38	$1 & 8% Stk.	77½	44½	91	70
3⅜	1¾	7,500	2⅝	2¼	2½	Superior Oil Corp.	1,388,079	$1				7¾	1½	6¾	3
44⅞	32⅝	20,800	40¾	37	39⅞	Texas Corp.	10,875,006	$25	50cQ	4-1-38	2.25	65⅛	34⅜	55¼	28⅞
4⅞	2⅝	2,900	3⅞	3⅝	3⅝	Texas Gulf Producing Co.	888,135	N.P.	10c	12-23-37	.10	9⅝	2	8⅞	4⅜
10⅛	7	7,300	9¼	8½	9	Texas Pacific Coal & Oil	888,237	$10	10c	3-1-38	.40	16⅝	5⅜	15¼	7½
15½	10⅛	7,300	14¼	13	13¾	Tide Water Associated	6,369,175	N.P.	25cQ	3-1-38	1.20	21⅝	13⅛	21¾	14¾
21⅝	17⅛	4,700	20¾	19⅝	19⅝	Union Oil of California	4,666,270	$25	30cQ	2-10-38	1.40	28¼	17½	28½	20¾
23½	20	1,400	20⅞	20¼	20¼	Union Tank Car Co.	1,200,000	N.P.	40cQ	3-1-38	1.60	31½	22	31⅝	22⅝
2¾	1⅝	1,300	2½	2¼	2⅜	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	6¼	1¾	5¼	2¾

•Payable in 3½% notes. †Includes extras. ‡One-tenth share $2 preferred stock.

New York Curb Exchange

1938 High	1938 Low	Week ending Apr. 23 Sales	Week ending Apr. 23 High	Week ending Apr. 23 Low	Week ending Apr. 23 Close	Stocks—	Total shares outsanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
9⅜	5	1,800	7⅝	6½	6⅝	American Republics Corp.	1,308,049	$10	30c	12-27-37	$0.40	10	6⅝	..	.
10¼	5¼	800	6¾	6	6¼	Bridgeport Machine Co.	260,000	N.P.	1.25	12-30-37	$2.00	21⅜	7	21	13¼
39	34	350	35	33¾	33¾	Buckeye Pipe Line Co.	200,000	$50	50cQ	6-15-38	3.75	51½	36	50	39¾
110	97	No sales	..	..	..	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	3-21-38	7.00	123	95½	124¾	105
2	1	23,800	1¼	1⅛	1¼	Cities Service	37,804,394	N.P.	....	6-1-32	....	5⅜	1½	7⅜	3
2⅜	1	600	1⅜	1⅛	1⅜	Cosden Petroleum	399,687	$1	....	..	....	5½	1½	4½	1⅛
27½	17½	6,100	23½	20⅛	23½	Creole Petroleum	6,974,356	$5	50cSA†	12-15-37	1.00	38¾	20¼	39	19⅞
8¾	5½	300	7¼	6¾	7	Darby Petroleum	351,390	$5	25cSA	1-15-38	.50	18⅝	6½	18⅛	9
3½	2	2,700	3¼	2⅝	2¾	Derby Oil & Refining	263,162	N.P.	....	.....	....	8⅜	2¼	6¾	1⅞
31	22⅜	No sales	..	..	..	Eureka Pipe Line	50,000	$50	$1Q	2-1-38	4.00	47½	24½	47½	38⅛
42⅞	33	3,900	38	35¼	36⅞	Gulf Oil Corp.	9,076,202	$25	25cQ	4-1-38	1.00	63½	33	59	36
70	56	2,500	69½	65⅝	69	Humble Oil & Refining	8,923,935	N.P.	37½c	4-1-38	2.00	87	54⅞	80	57
19½	15	2,700	17⅞	17¼	17⅝	Imperial Oil of Canada	26,919,871	N.P.	62½cSA†‡	12-1-37	1.25	24¼	14½	24½	19¾
8¼	6⅝	100	7½	7½	7½	Indiana Pipe Line	300,000	$10	30c	5-14-38	.80	15	5⅞	9¾	5½
31¼	23	5,000	26⅜	25¼	25⅝	International Petroleum	14,247,088	N.P.	$1.25†‡	12-1-37	2.50	39½	23½	39⅝	32⅝
5	3¼	500	4	3⅝	4	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	...	8¾	2⅜	5¾	2⅝
25⅛	15⅝	1,900	23⅛	21½	22⅞	Lion Oil Refining	434,820	N.P.	50cQ†	12-24-37	1.50	34	12½	17⅜	7⅝
9¼	6⅝	3,200	7⅞	7⅝	7⅞	Lone Star Gas	5,382,723	N.P.	20c	4-20-38	.60	14¼	5¼	14¼	9⅞
9⅜	6½	6,700	8	7¼	7⅞	Louisiana Land & Exp.	3,000,000	N.P.	20cQ†	12-15-37	.50	15¼	6¾	15⅜	9⅞
8⅜	6⅝	800	7¾	7	7¾	Midwest Oil Co.	998,444	$10	50c	12-15-37	1.00	14⅝	6¼	..	..
5¼	4½	2,600	5⅝	4⅞	5	Mountain Producers	1,682,182	$10	30cSA	12-15-37	.60	7⅞	4⅛	8⅜	5
14⅝	12⅛	1,300	13⅜	13	13¼	National Fuel Gas	3,810,183	N.P.	25cQ	1-15-38	1.00	19½	12	23	17⅜
9¼	7⅝	No sales	..	..	..	National Transit	509,000	$12.50	55cSA	12-15-37	1.00	12½	7¼	15⅜	9¼
2⅝	1½	1,300	1¾	1⅝	1¾	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	...	5	1⅛	6⅝	1⅝
4½	4	100	4	4	4	New York Transit	100,000	$5	15c	4-15-38	1.00	5⅜	3⅞	6¼	4¼
6	4	100	4¾	4¾	4¾	Northern Pipe Line	120,000	$10	20cSA	6-1-38	1.00	12¾	5¾	9¾	4⅞
7⅜	4⅛	10,900	5⅝	5	5¼	Pantepec Oil	1,608,700	N.P.	....	.....	...	9⅝	2¾	10⅛	3¼
3½	1⅝	500	2⅜	2⅛	2⅛	Root Petroleum Co.	336,045	$1	25c	2-1-37	.25	13¾	2	19¼	4½
4	2⅛	500	3	3	3	Ryan Consolidated	296,931	N.P.	....	.....	....	6½	2¼	4¾	1⅞
5⅜	3⅜	No sales	..	..	..	Southern Pipe Line	100,000	$10	15cSA	3-1-38	.45	7¼	3⅞	7⅞	3¼
39	28¾	1,000	34½	33¾	34½	South Penn Oil	1,000,000	$25	50cQ†	3-31-38	3.65	56	35	44	32½
22¼	19½	No sales	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50cQ	4-1-38	2.00	42	20	60	44
18	15	2,300	16⅛	16	16	Standard Oil of Kentucky	2,604,790	$10	25c	3-15-38	1.50	21⅛	14¾	23⅜	17⅛
7½	6⅛	100	6¼	6¼	6¼	Standard Oil of Nebraska	166,403	$25	25c	3-29-37	.25	13¾	8	14⅝	11
22	16¼	700	18¾	18	18⅜	Standard Oil of Ohio	753,740	$25	25c	3-15-38	1.50	45	16	40	21¾
3¼	2⅛	2,100	2⅞	2¾	2⅞	Sunray Oil	1,910,119	$1	10c	12-24-37	.25	4⅞	2	5	2⅝
4⅜	3½	200	4¼	4¼	4¼	Texon Oil & Land	336,028	$2	15cQ	3-31-38	.45	7⅝	2	9¾	5⅜
7⅝	4⅝	700	6	6	6	Transwestern Oil Co.	750,000	$10	....	....	.	13⅞	4⅝	..	.
5¼	2¾	11,800	4	3¼	3⅞	United Gas Corp.	7,818,959	$1	10c	9-15-37	....	13⅝	3	10¾	4

†Includes extras. ‡Payable in Canadian funds. §Of which $1 was in preferred stock.

PERSONAL

A. S. PAWLING, formerly manager of merchandising for the Standard Oil Company of New Jersey, has become president, general manager and director of the newly organized Standard Marketing Company, Inc., with offices at 26 Broadway, New York.

EDWARD L. DOHENY III, grandson of the late oil magnate, will receive $875,263 in cash and securities from his grandfather's estate, it was revealed when his mother, MRS. LUCY S. DOHENY BATTSON, filed a petition in probate court in Los Angeles, Calif. It was stated that the grandson had become 21 years of age last February 8 and was legally entitled to take charge of the property. The mother has been acting as legal guardian.

FRANK GILSTRAP, production superintendent of the Tropical Oil Company, Colombia, arrived in New York this week. He will visit the Pacific Coast before returning to South America.

W. F. BOWSER, geologist with the Lion Oil Refining Company, in charge of the work in West Texas, has been transferred from his headquarters in Abilene to the home office in El Dorado, Ark.

R. W. MARTIN, secretary to L. P. ST. CLAIR, president of the Union Oil Company, has been in Good Samaritan Hospital, Los Angeles, with a serious throat infection, but he is expected back at the headquarters of the company within another week or 10 days.

H. M. ADDINSELL, chairman of executive committee, First Boston Corporation; E. P. EARLE, president, Nipissing Mines Company, Ltd.; A. S. WOODS, vice president, John and Mary R. Markle Foundation; J. L. JOHNSTON, president, the Lambert Company (all of New York); C. A. LEMP, investments, St. Louis, Mo., and EUGENE E. DU PONT, director, E. I. du Pont de Nemours, Wilmington, Del., were directors of the Phillips Petroleum Company who arrived at Bartlesville, Okla., in three special cars from New York Monday of this week to attend the annual meeting of the company Tuesday. Others prominent in business life were in the party. All went direct to the Frank Phillips ranch near Bartlesville, where they had dinner Monday night. After the stockholders' meeting Tuesday forenoon the visitors, with officers of the company and their wives, were guests at a luncheon given by MR. and MRS. JOHN H. KANE. Mr. Kane resigned late last year as executive vice president and general counsel.

H. L. PAYTON, formerly of Tyler, Tex., has been transferred to the Sun Oil Company's rental department in Dallas, Tex.

RICHARD SHINN, superintendent for the General Petroleum Corporation in Bakersfield, Calif., has been elected "kingfish" of the 10-20 Club, composed of men who have served 10 to 20 years with the company.

J. T. HAYWARD, Barnsdall Oil Company, Tulsa, has been appointed chairman of the drilling and production practice committee for 1938 of the American Petroleum Institute's Division of Production. W. E. GILBERT, of Shell Oil Corporation, was appointed vice chairman.

J. R. HARMON, formerly district superintendent for the Shell Oil Company at Oilfields, Calif., has been transferred to Bakersfield, where he will serve as district superintendent under CLAUDE E. PEAVY, general superintendent in the San Joaquin Valley. Mr. Harmon's former position has been filled by DONALD STEWART, who was a production foreman in the district.

R. G. A. VAN DER WOUDE, president of the Shell Union Oil Corporation, told stockholders, meeting in New York last Thursday, that crude production in California is excessive and urged application of common sense. He urged reduction of gasoline stocks and added: "The price of crude oil is not excessive when consideration is given to increasing cost of discovering new reserves and the attendant hazards. At the same time buyers of crude oil can hardly be expected to continue paying present prices unless prices for refined products show an improvement. Too optimistic views are entertained as to the future demand for gasoline, and it would be well if such optimism were moderated."

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

Dr. W. G. Hunter, veteran oil man, says the first mystery well was drilled on the Dugan farm, near Millerstown, Butler County, Pennsylvania, in 1874. The rig was closely boarded up and watched by husky guards.

R. J. Hanna and H. M. Storey are added to the board of directors of the Standard Oil Co. of California. D. G. Scofield is president. The Standard's 10-story office building in San Francisco is rapidly nearing completion.

Mid-Continent crude oil prices vary from 70 cents per barrel for heavy Caddo, Louisiana, crude to 95 cents for Corsicana, Electra and Henrietta, Texas, crude. Oklahoma and Kansas crudes are quoted at 88 cents per barrel.

20 YEARS AGO

Magnolia Petroleum Company paid an estimated $4,000,000 for one-half interest in the 1,380-acre Koogler land in Butler County, Kansas.

Joseph F. Guffey has resigned as president of the Equitable Gas Company to devote all his time to the business of running for governor of Pennsylvania. Mr. Guffey is an unterrified Democrat in a Republican state.

Standard Oil Company of New Jersey insures the lives of all employes who have been in its service one year or more. Thirty thousand persons are affected.

10 YEARS AGO

Harold N. Pardee of Cisco, Tex., has been appointed umpire in the Hendricks field in Winkler County, Texas. He started his oil career as a tool dresser for the Texas Company. Hendricks is producing 269,000 barrels a day from 148 wells.

Nearly a million passenger automobiles and 100,000 trucks were made in the first three months of 1928.

The weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb was $71.31 per share, a gain of $8 per share in 14 weeks.

JACK LOFFLAND, of Loffland Brothers Drilling Company, Fort Worth, Texas, is spending a vacation in Hot Springs, Ark.

HARTLEY V. VANDERSALL, associated with the Standard Oil Company of Venezuela, Caripita, Venezuela, is spending a vacation in Houston, Tex., with relatives.

CHARLES E. YAGER, chief geologist of the Texas Pacific Coal & Oil Company, was named vice president at its recent election of officers. Mr. Yager is also a member of the board.

JOHN P. HERRICK, of Olean, N. Y., and Los Angeles, veteran oil producer in the Allegany field of New York, is recovering from an accident in which he suffered a broken leg. Mr. Herrick is in his Los Angeles home.

D. E. SULLIVAN, chief engineer of the Pure Oil Company, Chicago, has been appointed a member of the committee on disposal of refinery wastes of the American Petroleum Institute's Division of Refining.

H. A. THOMPSON, from the land department of the British American Oil Producing Company, of Tulsa, is in Casper, Wyo., in connection with his company's leases in that region. Mr. Thompson was with old Western States Oil Company in the early days of Wyoming oil development.

MIKE HOGG, independent oil man; R. S. STERLING, Sterling Oil & Refining Company; ADRIAN MOORE, independent oil man, all of Houston, Tex., and C. V. TERRELL, chairman of the State Railroad Commission, Austin, were among targets at a gridiron barbecue given for oil workers by TRAVIS SMITH, land owner in the West Columbia field of Texas. H. E. BELL, geologist for the Humble Oil & Refining Company, Houston, was one of the speakers.

PARAGRAPHS

LOYD B. CURTIS, president of the Wyoming State Geological Society, and HENRY CONANT, vice president, are doing some active organization work, extending membership and establishing new branches. A new chapter of the society is to be installed in Riverton, and others are to follow.

ADDISON B. DAY was reelected chairman of board of Southern California Gas Company at the recent annual meeting in Los Angeles. A. B. MACBETH was reelected president and general manager; H. L. MASSER, executive vice president; LeROY M. EDWARDS, vice president and special counsel; T. J. REYNOLDS, vice president and general counsel; R. W. MILLER, W. E. HOUGHTON, WILLIAM MOELLER, JR., and F. M. BANKS, vice presidents; C. L. WHITEHILL, secretary; E. N. SIMMONS, comptroller; L. D. ROMIG, treasurer; F. E. SEAVER and R. R. BLACKBURN, assistant secretaries, and L. B. WILSON and H. L. PHELPS, assistant treasurers.

DR. ROBERT E. WILSON, vice chairman of the Pan American Petroleum & Transport Company, has returned to New York after an extended trip through Texas and to a new wildcat location spudded by the company in Georgia.

C. HALL MONTGOMERY, division geologist for the Continental Oil Company in the San Joaquin Valley, California, presented a discussion on the world's deepest well to members of the American Petroleum Institute at a chapter meeting in Bakersfield last week.

FRED M. HASSE, formerly assistant district geologist for Shell Petroleum Corporation in the West Texas district, has been transferred from Midland to Abilene, Tex., where he will be resident geologist for the Shell company in West Central Texas. Mr. Hasse was succeeded in the Midland office by GORDON W. HEID, who has been on the staff there for about a year.

VICENT CORTES HERERA, director of the petroleum administrative council of Mexico, will attend the International Petroleum Exposition in Tulsa next month as an official representative of his government, it is announced by JAMES H. GARDNER, president of the Gardner Petroleum Corporation and chairman of the oil show international delegates committee.

D. V. STROOP, staff engineer of the American Petroleum Institute, told the petroleum session of the Greater New York Safety Council last week that "a constantly increasing burden of taxation and regulation must inevitably reduce the number of industrial competitors to the finality where governmental monopolies take over all directoral functions. Industry sees a need to declare a moratorium on new regulatory laws and regulations."

A. W. WEEKS, who resigned recently as district geologist for the Shell Petroleum Company in Wichita Falls, Tex., has entered private practice as a consulting geologist in that city.

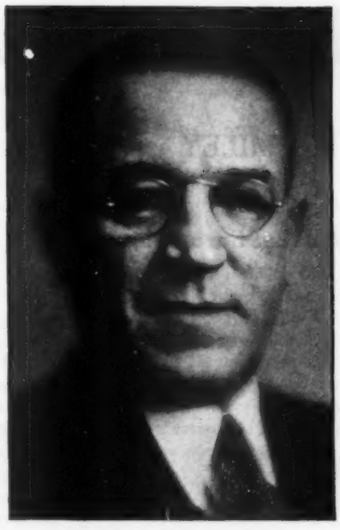
SIDNEY L. HEROLD, of the Shreveport Bar Association, chairman of the commission which drafted Louisiana's proposed mineral code, led discussion of the code at a symposium in Baton Rouge last week. The code was examined in its different phases by DAN DABAILLON of Lafayette, giving the land owners' view; ALDEN T. SHOTWELL, of Munroe, from the standpoint of the oil company or lessee, and ALLEN BARKSDALE, of Ruston, who gave the royalty owners' views.

A. E. BLACK, scout for the Phillips Petroleum Company at Mattoon, Ill., has been transferred to the Wichita Falls, Tex., district office.

W. A. SLOAN, regional treasurer; E. WHITEHEAD, fuel oil sales manager; MISS L. D. BINGLEY, secretary to Mr. Whitehead; J. A. JONES, assistant vice president; G. D. ZEH, manager of the marine department; W. S. BADGER, tax department, and CARL BRONSON, sales agent at San Jose, recently completed 35 years' service with the Associated Division of the Tide Water Associated Oil Company and received service emblems at the San Francisco office, presented by WILLIAM F. HUMPHRY, president. MR. HUMPHRY made awards to five employes who have served 25 years.

Planned to Be a Lawyer

A. J. Cunningham, recently advanced to manager of the southern division for the Standard Oil Company of Texas, a Standard of California subsidiary, wasn't planning to be an oil man during his school days. He was going to be a lawyer. Following his graduation from the law school of the University of Colorado in 1911 he took the bar examination in Montana, was admitted to practice in that state and opened an office in Billings. Billings at that time had a population of about 10,000 and was the commercial center for an immense stock-raising region. This livestock business, with one of the largest inland wool markets in the United States, provided a pretty steady, though not impressively large, flow of legal work. Young Cunningham built up a fairly lucrative clientele, but he never got madly enthusiastic over it. So it came about that when he was invited to enter the land and lease department of the California Company, subsidiary of the Standard of California in 1923, he accepted. He remained in Montana, where the company was active in oil-field development.



A. J. CUNNINGHAM

In 1928 Mr. Cunningham was transferred to the southern division of the Standard of Texas, with headquarters in Dallas, Tex. His legal training was proving a big asset, and three years later he was promoted to superintendent of the land and lease department. In 1936 he was made assistant manager of the division. Then a few weeks ago, when A. J. Hawley, manager, was transferred to San Francisco, Mr. Cunningham was advanced to fill the vacancy.

SALVADOR DEL RIO, geologist, has been assigned to duty in Egypt with a company affiliated with Standard Oil Company of New Jersey. He was formerly geologist with Huasteca Petroleum Company in Mexico.

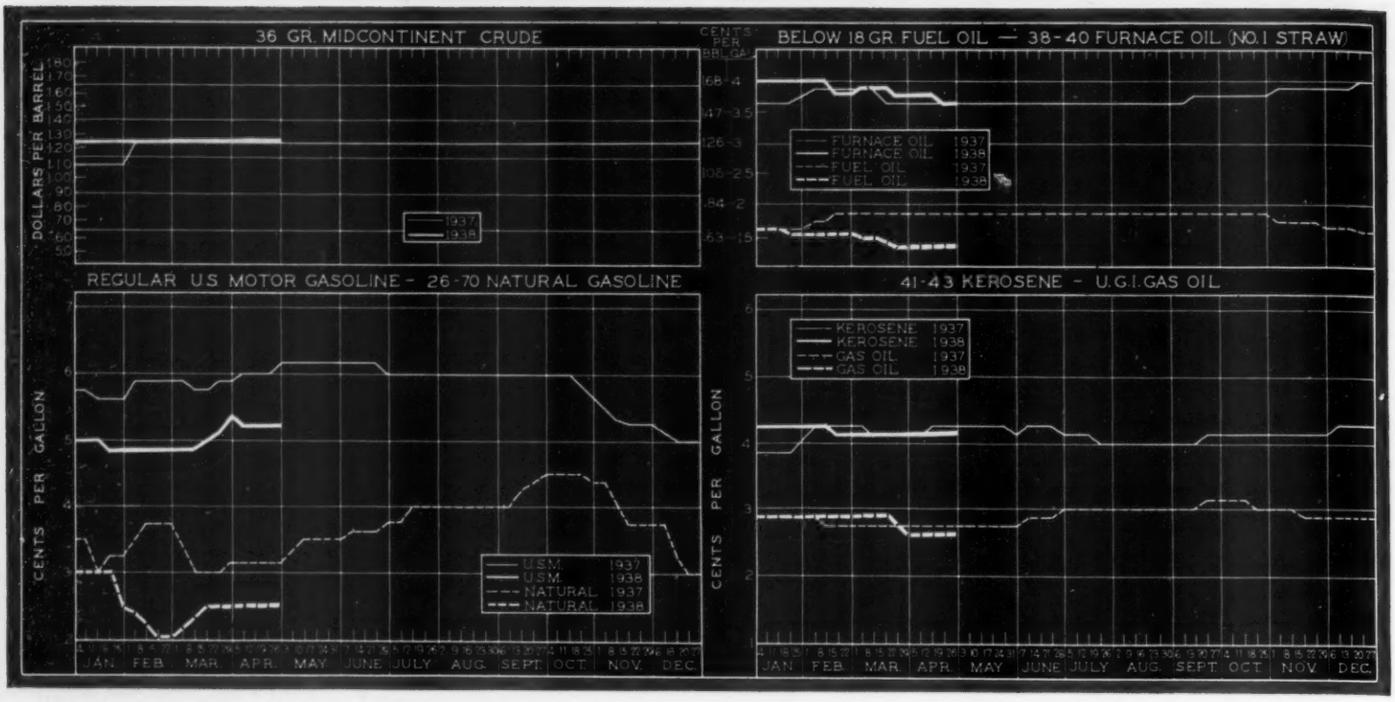
J. E. ERWIN, executive vice president of the North Texas Oil and Gas Association, who is conducting an active membership drive, says the organization will have the largest membership in its history during 1938.

WALTER BIERY, of the Sinclair Prairie Oil Company, Pampa, Tex., heads the committee on arrangements for a big safety rally planned for the Texas Panhandle, May 10, under direction of the Panhandle chapter of the American Petroleum Institute.

ELMER R. CORN, vice president and general manager of the Plains Oil Company, Wichita, Kans., was elected mayor of that city by the board of commissioners last Thursday. Mr. Corn was chosen a commissioner three months ago to succeed the late Frank Nighswonger.

C. A. YOCUM, formerly purchasing agent for the Western Gulf Oil Company at the company's Kern County office in the Fruitvale field, near Bakersfield, Calif., has been transferred to the main office in Los Angeles. His place in the San Joaquin Valley has been taken by C. P. STANFIELD.

H. R. MILNER, K. C., president of the Canadian Western Natural Gas, Light, Heat & Power Company of Calgary and the Northwestern Utilities, Ltd., of Edmonton, has been elected president of the Anglo-Canadian Oil Company of Calgary. A leading member of the Alberta bar, Mr. Milner has been actively connected with the natural gas industry in that province.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Group 3 Gasoline Steadier as Stocks in East Texas Melt Under Buying

By T. F. SMILEY

One reason for uneasiness in the Group 3 gasoline market was disappearing this week as the result of active buying in East Texas, where ponderous inventories had been accumulating. Need of outlets from that area became so urgent that prices broke. Shaved quotations had the desired effect. The dammed material (sales managers weren't particular about the spelling) began to move. By Saturday of last week it was estimated 125 cars of gasoline had been shipped out of the congested zone. One broker alone was reported to have handled 40 cars. Withdrawals continued this week, relieving still further the pressure which had begun to cause nervousness.

Business Failed to Materialize

The difficulties which beset refiners in the East Texas area, where pronounced strength prevailed a few weeks ago, are attributed chiefly to diminished demand from the Gulf Coast. Big stocks were laid in months ago at Gulf ports in preparation for an expected rise in export and coastwise orders. But the awaited business did not materialize. Terminal storage tanks soon bulged with gasoline. Gulf Coast refiners who had been buying low-octane material from East Texas because it was cheaper to do that than it was to make it themselves could fill their needs now from the overheavy stocks right at the Gulf at less cost. East Texas refiners had to look in other directions for outlets. Sharp competition for business quickly developed. Concessions were granted. The jam broke.

So far as could be ascertained, no burdensome stocks of gasoline aside from those in East Texas developed at any Mid-Continent refineries. Although the depressed state of the low-octane division inevitably exerted an unfavorable influence on the upper brackets for a few days, no underselling was reported. On the contrary, signs of ascending strength were visible this week. With quotations running about a cent a gallon lower than they were at this time last year, small refiners are operating close to a nonprofitable basis, and they have turned to shutdowns, rather than to price-cuts, as a means of reducing their losses.

Refined Oil Market Barometer

Moderate pickup in gasoline under way, but fear of a cut in crude prices continues to be a disturbing influence. Overheavy gasoline inventories in East Texas, which were threatening the Mid-Continent market, are being cleaned up. Lubricants remain weak, but severe reductions in output already made should go far toward stabilizing this group. Heating oils sinking to summer lows.

MID-CONTINENT. Gasoline slightly steadier. Naturals dull. Tractor fuels firm.

EAST COAST. Gasoline somewhat firmer. Light fuels weak. Industrial fuel steadier.

GULF COAST. Gasoline and kerosene soft. Light fuels dull. General market lifeless.

CALIFORNIA. Fuel oil, diesel, and heating oil continue weak. Market inactive.

PENNSYLVANIA. Gasoline firm. Kerosene steady. Lubricants under pressure.

CHICAGO. Gasoline unsettled. Heating oils sluggish. Heavy industrials faintly better.

The week-end afforded pleasant driving weather in most areas, heightening gasoline consumption. Feeling in the trade was general that a few days of favorable motoring conditions would transform the market outlook for gasoline. Some sales managers reported their refinery shipments were almost or wholly normal, following the dull period that set in after the heavy March buying. One company, after an examination of its records, finds it has shipped 22 per cent more gasoline in the first quarter of 1938 than it did in the first quarter of 1937. Other companies are believed to have done as well.

Natural gasoline was lifeless. Which surprised nobody. Spot demand was near the vanishing-point. Large manufacturers appeared to be interested only in taking care of their established trade and in storing against next fall's needs. Small manufacturers evidently were finding enough demand somewhere to enable them to avoid accumulating distress stocks. Prices showed no disposition to move in either direction.

Lubricants Slightly Better

A more cheerful sentiment was observable in the lubricant division. Notwithstanding persistent price-cutting in some quarters, a more healthy condition is declared to be in the making. Virtually all the important Mid-Continent refineries have either made drastic cuts in their output or have closed altogether. Stocks are diminishing, and the lower they go the firmer prices should be.

Heating oils had no friends, and quotations on some grades were off another eighth. Kerosene, while holding to last week's prices, was showing little life. Tractor fuels were steady.

Broadened Motor Fuel Demand in the Northeastern Territory

By H. STANLEY NORMAN

NEW YORK, Apr. 25.—Broadened motor fuel demand from jobbers and drivers in the northeastern territory stimulated tankcar markets last week. There has been no material change in the general price structure in New York Harbor territory, but quotations of 6½ cents for 65-octane motor fuel to the tankcar trade are moving to the strong side. Barge deliveries of 65-octane gasoline are still obtainable at 6¼ cents, but the shading of two weeks ago is not present currently.

In contrast to the stronger gasoline market, fuel oils are drifting lower, particularly the industrial grades. Delivery of the light domestic grades to individual consumers is approaching summer levels and the movement from refineries is confined to small quantities. In northern New York and in the New England district domestic fuels are still moving in a moderate fashion, but business in this direction will probably dry up within two or three weeks, excepting in the rural areas where oil is used the entire year for cooking.

Boston motor fuel prices were unsettled. Socony-Vacuum Oil Co. lowered tankcar quotations half a cent per gallon April 20 after competitive sellers had either failed to raise prices two weeks ago or had slipped back after a few days.

Other parts of New England, New York, Pennsylvania and New Jersey reported normal retail gasoline markets. The "normal" market in northern New Jersey remains considerably below surrounding territory, but this condition has prevailed for months. Efforts of certain interests in New Jersey to fix gasoline prices by an act of the legislature are being stiffly contested and it is the consensus that enactment is a remote possibility.

The Gulf Coast cargo market remained practically unchanged, although several cargoes of heavy fuel oils were reported lifted during the past several days, easing the pressure on that product to some extent. Most of the heavy fuel oil cargoes were for export trade and prices paid refiners were reported to vary between 70 and 75 cents per barrel. There has been a slight improvement in industrial fuel demand for the coastwise trade, largely because of replacement business forced upon consumers who have permitted stocks to sink near a minimum.

Bunker C fuel oil in New York Harbor is unchanged at preceding level of $1.05 per barrel.

The impression is prevalent in New York that some of the heavy fuel oil buying on the Gulf Coast last week resulted from interruption of normal supplies from Mexico. It is pointed out that fuel oil probably would be the first American product to benefit from cessation of shipments from Mexican refineries. Steamship lines operating facilities from New York to world ports are preparing for one of their best recent seasons, and this channel of consumption is expected to equal or surpass the 1937 summer demand. Due to curtailment of industrial consumption and the enlargement of stocks both on the East Coast and the Gulf, observers find little cause to anticipate market improvement. Heavy fuel oil is being offered to shore-plant consumers at prices varying from .0309 to .0310 cents per gallon.

Weakness in the tankcar market for light fuel oils has generally resulted in price concessions of one-eighth to one-fourth of a cent per gallon. No. 2, 3 and 4 fuel oils can be obtained for 4¼ to 4½ cents in this territory, which in turn is indicative of the trend on the Gulf Coast. Sellers in some parts of New York are reported contracting for light fuel oil delivery at 5¾ cents per gallon, but a majority are quoting a minimum of 6 cents with provisions made for upward adjustments to a maximum of 7½ cents for next winter's variations in the tankcar and cargo markets.

Kerosene is sluggish in the New York territory, but up-state demand is growing more vigorous as spring plowing business develops. Movement from the western Pennsylvania territory is also reported stronger along with gasoline. Kerosene is available in the New York territory for 5¼ cents per gallon, although several tankcar shippers are still quoting 5½ cents.

The Gulf Coast gasoline market is fairly steady, but business is largely confined to deliveries against contracts. Foreign buyers have confined their recent interest to feelers. Gulf Coast refiners have shown resistance to efforts of exporters to drive the motor fuel price to lower ground. With the improvement in coastwise shipments to cover requirements of contract customers, it appears doubtful that exporters will succeed in their bearish efforts.

Existence of inquiries indicates to some that Rumanian supplies are limited and that business in that direction is out of the question for the present. Rumanian refiners recently captured two or three cargoes in bidding one-eighth to one-quarter of a cent per gallon below the Gulf Coast figures.

To the coastwise trade Gulf Coast refiners are generally quoting 5⅝ cents per gallon on 65-octane motor fuel. With the lower trend of tanker rates at least temporarily halted, northern distributors were compelled to elevate their tankcar prices in order to realize a profit on operations. At 6 cents per gallon, the price at which some barge and tankcar business was done in the New York district early in April, the distributors were simply swapping dollars.

Nearly a dozen tankers are reported to have been tied up during the past two weeks rather than compete for cargoes on a declining market which slumped to a level returning little if any profit. Removal of the tonnage represented by the tied-up boats was sufficient to stimulate the market, at least to the extent that declines were arrested.

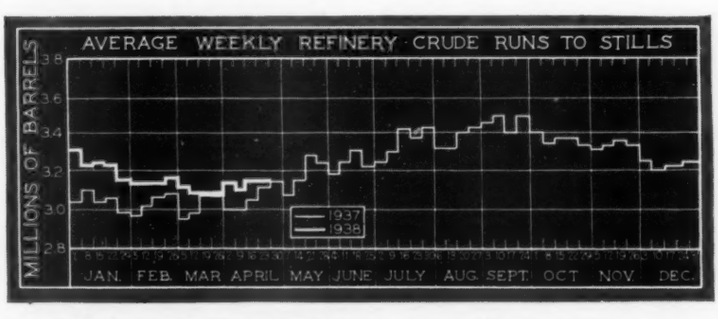
Prices of some lubricating oils in the western Pennsylvania district were subjected to additional pressure last week. Low pour test bright stocks and neutral oils were offered at prices a cent or more below the previous quotations. Movement in the spot market remains at a low level, but contract customers are ordering out material.

A. P. I. Weekly Refinery Statistics

Week Ending April 23, 1938

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	478,000	22,809,000	9,728,000
Appalachian	88.4	108,000	3,447,000	1,325,000
Indiana, Illinois, and Kentucky	92.4	411,000	15,290,000	7,515,000
Oklahoma, Kansas, and Missouri	84.7	275,000	7,968,000	3,592,000
Inland Texas	56.6	122,000	2,640,000	1,555,000
Texas Gulf	95.7	746,000	13,549,000	8,198,000
Louisiana Gulf	96.6	134,000	2,304,000	3,175,000
North Louisiana and Arkansas	63.7	43,000	586,000	579,000
Rocky Mountains	69.7	47,000	2,244,000	783,000
California	90.9	508,000	15,682,000	88,128,000
Total reported	89.0	2,872,000	86,519,000	124,578,000
Estimated unreported	.....	278,000	4,960,000	2,570,000
*Estimated total	.....	3,150,000	91,479,000	127,148,000
*Estimated total, previous week	.....	3,150,000	92,001,000	125,946,000
*April 24, 1937	.....	3,125,000	82,303,000	94,100,000

*Bureau of Mines, currently estimated.



Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending April 16, 1938	306,774,000 barrels
Week ending April 9, 1938	307,556,000 barrels
Week ending April 17, 1937	301,273,000 barrels

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of April 26, 1938

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dir.	Inc. tax	tank-wag.
Chicago, Ill.	15.6	13.6	4.0	10.5
Decatur	15.6	14.1	4.0	10.5
Joliet	15.6	14.1	4.0	10.5
Peoria	15.6	14.1	4.0	10.5
Quincy	15.4	13.9	4.0	10.3
Davenport, Ia.	15.6	14.1	4.0	‡10.5
Des Moines	15.4	13.9	4.0	‡8.3
Mason City	15.8	14.3	4.0	‡10.7
Sioux City	15.6	14.1	4.0	‡10 5
Duluth, Minn.	17.4	15.9	5.0	11.3
Mankato	17.0	15.5	5.0	10.9
Minneapolis	17.0	15.5	5.0	10.9
LaCrosse, Wis.	17.0	15.5	5.0	10.9
Green Bay	17.4	15.9	5.0	10.3
Milwaukee	16.8	15.3	5.0	10.7
Detroit, Mich.	15.3	13.8	4.0	10.0
Grand Rapids	14.8	13.8	4.0	9.7
Saginaw	16.3	14.8	4.0	9.3
Evansville, Ind.	17.1	15.6	5.0	†11.0
Indianapolis	17.3	15.8	5.0	†11.2
South Bend	17.6	16.1	5.0	†9.4
Fargo, N. Dak.	17.2	15.7	4.0	12.1
Minot	18.5	17.0	4.0	13.4
Huron, S. Dak.	17.5	16.0	5.0	11.4
Kans. City, Mo.*	14.9	13.4	4.0	9.8
St. Louis*	15.2	13.7	4.0	10.1
St. Joseph*	14.9	13.4	4.0	9.8
Wichita, Kans.	14.4	12.0	4.0	8.3

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over 7 cents; Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag.
Atl'tic, City, N.J.	12.75	11.25	4.0	8.5
Newark	12.75	11.25	4.0	8.0
Annapolis, Md.	14.85	13.35	5.0	9.5
Baltimore	14.25	12.75	5.0	9.0
Cumberland	16.65	14.15	5.0	10.0
Wash'g'n, D. C.	12.5	11.0	3.0	9.5
Danville, Va.	16.95	14.45	6.0	12.9
Norfolk	15.75	13.25	6.0	11.5
Petersburg	16.05	13.55	6.0	11.7
Richmond	16.05	13.55	6.0	11.7
Roanoke	17.25	14.75	6.0	12.9
Charles'n, W. V.	17.05	14.55	6.0	12.6
Parkersburg	15.35	13.85	6.0	11.2
Wheeling	16.25	14.85	6.0	12.2
Charlotte, N. C.	18.65	16.15	7.0	12.6
Hickory	19.15	16.65	7.0	13.0
Mt. Airy	18.95	16.45	7.0	12.8
Raleigh	18.25	15.75	7.0	12.1
Salisbury	18.75	16.25	7.0	12.7
Charleston, S. C.	17.25	14.75	7.0	11.1
Columbia	18.25	15.75	7.0	12.1
Spartanburg	18.95	16.45	7.0	12.9

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be the equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline			Kero.
	Tank-wag	Net dlr	Inc. tax	tank-wag
Atlanta, Ga.	21.0	18.0	7.0	*†14.0
Augusta	21.0	18.0	7.0	*†14.0
Macon	21.0	18.0	7.0	*†14.0
Savannah	19.5	16.5	7.0	*†12.0
Birm'ham, Ala.	21.0	18.0	8.0	12.0
Mobile	21.0	18.0	9.0	†11.0
Montgomery	21.0	19.0	9.0	†13.0
Jackson, Miss.	19.5	16.5	7.0	*†13.0
Vicksburg	19.5	16.5	7.0	*†13.0
Jacks'ville, Fla.	22.5	17.5	8.0	†11.0
Miami	20.0	17.0	8.0	†12.5
Pensacola	22.0	19.0	9.0	12.0
Tampa	20.5	17.5	8.0	10.5
Lexington, Ky.	19.0	16.0	6.0	11.0
Covington	18.5	15.5	6.0	11.0
Louisville	19.0	16.0	6.0	10.5
Paducah	19.0	16.0	6.0	10.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Kerosene prices in all states subject to 2 cents discount except in Kentucky where prices are net.

*Includes 1-cent state tax. †Subject to 2-cent discount.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag
Denver, Colo.	14.0	5.0	11.5
Grand Junction	19.0	5.0	15.0
Pueblo	13.0	5.0	10.5
Casper, Wyo.	17.0	5.0	11.5
Cheyenne	16.0	5.0	13.0
Butte, Mont.	19.5	6.0	15.5
Billings	19.5	6.0	15.5
Helena	19.5	6.0	15.5
Great Falls	19.5	6.0	15.5
Salt Lake City, Utah	18.0	5.0	16.0
Twin Falls, Ida.	21.0	6.0	18.0
Boise	21.5	6.0	18.0
Albuquerque, N. M.	17.5	*6.5	12.0

*Includes city tax of one-half cent.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank-wag. con'r.	Divided dlr.	Inc. tax	tank-wag.
Ohio points	16.5	15.5	5.0	*13.0

*Includes state tax of 1 cent.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Tank-wag.	Tank-car	Inc. tax	tank wag.
Albany, N. Y.	14.5	12.5	5.0	9.0
*Met. N. Y.:				
M'htt'n, Br'nx	14.0	12.5	5.0	8.75
Staten Island	14.0	12.5	5.0	8.75
Q'ns & Bklyn.	14.0	12.5	5.0	8.75
Buffalo	14.0	13.0	5.0	7.5
Rochester	15.0	13.2	5.0	8.5
Syracuse	14.5	13.1	5.0	9.0
Boston, Mass.	13.5	11.75	4.0	8.5
Portland, Me.	15.0	13.0	5.0	8.75
Manch'ter, N.H.	15.5		5.0	9.0
Burlington, Vt.	15.4	13.4	5.0	9.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon prices at delivery point.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank-wag.	Serv. sta.	Inc. tax	tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	21.5	22.5	6.0	*17.0
Reno, Nev.	20.5	21.5	5.0	13.0
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	22.5	23.5	6.0	16.0
Tacoma	20.0	21.0	6.0	13.5

*Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 2 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Omaha	18.0	16.5	6.0	10.8
McCook	17.8	15.3	6.0	10.3
Norfolk	18.4	16.9	6.0	10.3
North Platte	18.8	16.9	6.0	11.2
Scotts Bluff	19.5	16.3	6.0	12.3

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag.
N. Orleans, La.	19.0	16.5	*10.0	†12.0
Baton Rouge	17.0	14.5	8.0	12.0
Alexandria	17.5	15.0	8.0	10.5
Lafayette	18.0	15.5	8.0	12.5
Lake Charles	18.0	15.5	8.0	12.5
Shreveport	16.5	14.0	8.0	9.5
Kn'xv'lle, Tenn.	20.0	17.5	8.0	14.0
Memphis	18.0	15.5	8.0	12.0
Chattanooga	19.5	17.0	8.0	13.5
Nashville	19.0	16.5	8.0	10.5
Bristol	19.0	17.75	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag.
Philadelphia, Pa.	13.75	12.25	5.0	10.0
Pittsburgh	15.0	13.0	5.0	10.5
Allentown	14.25	12.75	5.0	10.5
Erie	14.5	13.0	5.0	10.0
Scranton	14.5	13.0	5.0	10.5
Altoona	15.0	13.0	5.0	10.5
Dover, Del.	14.0	....	5.0	10.5
Wilmington	14.0	....	5.0	10.5
Springf'd, Mass.	14.0	....	4.0	8.0
Worcester	14.5	....	4.0	9.0
Hartford, Conn.	13.6	....	4.0	8.0
New Haven	13.5	....	4.0	8.0
Providence, R. I.	13.3	....	4.0	8.5

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract, less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Muskogee, Okla.	14.5	5.0	7.0
Oklahoma City	14.0	5.0	8.0
Tulsa	14.0	5.0	6.0
Ft. Smith, Ark.	14.25	5.0	8.0
Little Rock	17.25	7.5	9.5
Texarkana	14.0	5.0	8.5

Texas

	Gasoline			Kero.
	Tank-wag.	Serv. sta.	Inc. tax	tank-wag.
Dallas, Tex.	14.0	18.0	5.0	8.0
Fort Worth	14.0	18.0	5.0	8.0
Houston	14.5	19.0	5.0	8.0
San Antonio	13.5	17.5	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N. S.	24.5	10.0	18.5
St. John, N. B.	24.5	10.0	18.5
Montreal, Que.	21.0	6.0	17.5
Toronto, Ont.	22.0	6.0	17.0
Hamilton, Ont.	22.0	6.0	17.0
Winnipeg, Man.	27.5	7.0	20.7
Brandon, Man.	28.1	7.0	22.3
Regina, Sask.	27.0	7.0	22.0
Saskatoon, Sask.	29.8	7.0	24.9
Edmonton, Alta.	26.5	7.0	21.5
Calgary, Alta.	24.0	7.0	19.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon price. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Retail Price Changes

Standard Oil Co. (Indiana) April 16 reduced dealer gasoline .9 cent in Wichita; April 19 advanced dealer gasoline .5 cent in Grand Rapids.

Continental Oil Co. April 12 reduced dealer gasoline 1.5 cents in Salt Lake City.

Standard Oil Co. of Louisiana April 15 reduced tank-wagon kerosene 1.5 cents in Little Rock.

Distillate and Fuel Oil Burner Shipments Low

NEW YORK.—Shipments of distillate and fuel oil burners slipped to a new recent low in February leaving the first two months of the year disappointing, both from the standpoint of burner manufacturers and from that of the petroleum refiners.

Oil burner shipments, including units for consumption of commercial standard No. 1 fuel oil and heavier, totaled 11,876 units for the first two months, compared to 19,102 for the same period in 1937. In February, shipments amounted to 5,538 units compared to 6,338 in January and with 9,828 in February, 1937.

Shipments of distillate oil burners in February totaled 5,199 units raising the total to 11,985. There were 6,786 units shipped in January, 1938, and 8,746 in February, 1937. For the first two months of last year distillate burner shipments totaled 18,012 units.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of April 26, 1938

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below	.04¼	.04⅜
63-66 octane	.04⅜	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
60-62 400 grades:		
62 oct. and below	.04⅜	.04½
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
64-66 375	.04¾	.04⅞
68-70 360	.05	.05⅛

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.04¼	.04⅜
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
60-62 400	.04⅜	.04½
64-66 375	.04¾	.04⅞

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)

U. S. Motor grades:		
62 octane and below	.04⅜	.04½
63-66 octane	.04¾	.05
67-69 octane	.05	.05½
70-72 octane (regular)	.05½	.05⅝

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below	.04½	.04⅝
67-69 octane	.05	.05½
70-72 octane (regular)	.05½	.05⅝

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04⅜	.04⅝
63-66 octane	.04⅝	.04⅞
67-69 octane	.04⅞	.05⅛
70-72 octane (regular)	.05¼	.05½
60-62 400 grades:		
62 octane and below	.04⅜	.04⅝
63-66 octane	.04⅝	.04⅞
67-69 octane	.04⅞	.05⅛
70-72 octane (regular)	.05¼	.05½
64-66 375	.04¾	.05
68-70 360	.05	.05¼

PENNSYLVANIA (Inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.05⅛	.05⅜
65 octane	.06¼	.06½
68-70 octane	.06⅞	.07⅛

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06¾	.08¼
58-60 400, 65 oct. and higher	.08½	.09¼

EAST COAST (Domestic)—

U. S. Motor, 60-64.9 octane:		
New York (Bayonne)	.06¼	.06½
Philadelphia	.06¼	.06½
Boston	.06½	.06⅝
Baltimore	.06½	.06¾
Charleston, S. C.	.07	.07¼
U. S. Motor, 65 and above:		
*New York (Bayonne)	.06½	.07
Philadelphia	.06½	.07
Boston	.06¾	.07
Baltimore	.07	.07¼
Charleston, S. C.	.07¼	.07½

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05	.05¼
60-64.9	.05¼	.05⅜
65 octane and higher	.05½	.05¾

Naphtha

PENNSYLVANIA (Inland refineries)—

52-56 450 (blending)	.04¾	.05

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02½
Grade 18-55	.03	.03¼

NORTH TEXAS—

Grade 26-70		.02⅝
Grade 18-55	.03⅛	.03¼

CALIFORNIA—

75-85 375-390	.06½	.07

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70	.03

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110 flash, 540-550 e.p.	.04	.04⅛
41-43 gr., 300-520 l.b.p., 110-125 flash, 500-520 e.p.	.04⅛	.04¼
46-48 gr., 210-230 l.b.p., 480 max. e.p.	.04½	.04⅝

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04¼	.04¼
42-44	.04¼	.04⅜

NORTH TEXAS—

41-43	.04⅛	.04¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43	.04⅜	.04½

ARKANSAS (Ark., N. La., Miss. del.)—

41-43	.04½	.04⅝

PENNSYLVANIA (Inland refineries)—

45	.05	.05⅛
46	.05⅛	.05¼
47	.05¼	.05⅜

CHICAGO (Based on Group 3)—

41-43	.04⅛	.04⅜
42-44	.04⅜	.04⅝

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.05	.06

NEW YORK (Bayonne, N. J.)—

41-43		.05¾

***GULF COAST (domestic)—**

41-43	.04⅝	.04¾

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅞	.04
No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03¼	.03⅜
No. 2 dark, 32-36	.03⅛	.03¼
No. 3 zero to 15, 28-32	.03⅛	.03¼
No. 3, 15 and above, 28-32	.02⅞	.03

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03½	.03⅝

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36		.03⅝

CHICAGO (Based on Group 3)—

Range oil	.03⅞	.04⅛
No. 1 prime white, 38-40	.03¾	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03⅜	.03⅝
No. 2 dark, 32-36	.03¼	.03⅜
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NEW YORK (Bayonne, N. J.)—

*No. 1		.05⅜
*No. 2		.04¾
*No. 4		.04¾

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02⅝	.02¾
No. 4, low cold test, 24-28	1.05	1.10
No. 4, 15 and above, 24-28	.85	.90
No. 5, low cold test, 18-22	.72½	.77½
Below 18 fuel oil, industrial	.55	.60

NORTH TEXAS—

U.G.I. gas oil	.02⅝	.02¾
No. 4, low cold test, 24-28	1.05	1.10
No. 5, low cold test, 18-22	.72½	.77½
Below 18 fuel oil, industrial	.55	.60

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

10-14 fuel oil, industrial	.80	.85

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 4, low cold test, 24-28	1.05	1.15
No. 4, 15 and above, 24-28	.85	.95
No. 5, low cold test, 18-22	.72½	.77½
No. 5, 15 and above, 18-22	.60	.70
No. 6, low cold test, 10-16	.60	.70
No. 6, 15 and above, 10-16	.35	.47½

PENNSYLVANIA (inland refineries)—

36-40	.03¾	.04⅛

CALIFORNIA

Los Angeles:		
30-40 gas oil, per bbl.	1.25	1.50
24 plus diesel, per bbl.	1.20	1.50
24 plus diesel (bunkers)	1.30	1.55
12-16 (bunkers at tidewater)	.90	1.00
10-16 (cargo lots)	.80	1.00
12-17 (tankcars)	.60	1.00
10-17 (high sulfur)	.55	.95
San Joaquin Valley:		
10-18 (tankcars)	.60	.85
24 plus diesel, per bbl.	1.30	1.50
San Francisco:		
24 plus diesel, per bbl.	1.45	1.55
24 plus diesel (bunkers)	1.55	1.65
10-16 (bunkers)	1.00	1.05

GULF COAST—

28-30 gas oil		.03⅝
28-30 diesel (bunkers)		1.75
Bunkers (bulk cargoes)	.70	.75
Bunker C (bunkers)	.80	.85

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04¾
28-30 diesel (lighterage 6¼c per bbl.)		1.85
28-30 diesel (tankcars)	.04¾	.05
Bunker C (to ocean-going ships in N. Y. harbor)		1.10
Industrial fuel (tankcars)	.04	.04¼

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

Bright Stocks:		
190-200 D, 15-25		.19
150-160 D, 0-10		.16
150-160 D, 15-25		.14½
150-160 E, 15-25		.13½
100-110 D, 0-10		.14½
Steam refined:		
631 green (treated)		.13½
600 dark green (untreated)		.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour test	.16½	.17
15 pour test	.15½	.16
20 pour test	.14½	.15
25 pour test	.13½	.14
Steam refined:		
600	.08½	.09
650	.10½	.11½
600 Pennsylvania flash	.11	.13
630 flash	.14	.15
600 Warren E filtered	.13	.14

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:		
150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-3½		.13
400-3½		.14
100-2½ paraffin oil		.06
15-20 Cold Test:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale Oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¾	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F. color, 400-405 flash:		
Zero pour test	.16	.16½
10 pour test	.15	.15½
15 pour test	.14½	.15
25 pour test	.13½	.14
180 vis. at 70° F., 3 color:		
25 pour test	.15	.15½
200 vis. at 70° F., 3 color:		
Zero pour test	.17½	.18
10 pour test	.16½	.17
15 pour test	.16	.16½
25 pour test	.15	.15½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.02⅛	.02¼

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0190	.0200
124-126 (a.m.p.) w.c. scale	.0190	.0200

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0420
125-127 (a.m.p.) wax		.0435
128-130 (a.m.p.) wax		.0445
130-132 (a.m.p.) wax		.0455
133-135 (a.m.p.) wax		.0500
135-137 (a.m.p.) wax		.0515
124-126 (a.m.p.) w.s.	.0205	.0215
124-126 (a.m.p.) y.s.	.0200	.0210
Petrolatum in barrels, carload lots:		
Dark green	.02	.02½
Amber	.02⅜	.02½
Extra amber	.02⅝	.02¾
Lily white	.05½	.05¼
Snow white	.06⅛	.06¼
Cream	.04⅛	.04¼

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.04¾	.04⅞
60-62 400	.04¾	.04⅞
61-63 390	.04⅞	.05
64-66 375	.04⅞	.05

LOS ANGELES—

U. S. Motor grades:		
55-65 octane	.05¼	.05½
65-69 octane		.05¾
Above 69 octane		.06¼

KEROSENE

GULF COAST—

41-43 prime white	.04¾	.04⅝
41-43 water white	.04½	.04¾
44 water white		.04¾

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.20½	.21
600 S.R. unfiltered	.16	.16½
630 S.R. unfiltered	.18	.18½
600 flash S.R.	.18½	.19
630 flash, S.R.	.21½	.22
Bright Stocks:		
8 color	.23	.23½
6½ plus color in dilution	.22½	.23

NEUTRAL OIL

200-3 color	.24½	.25
150-3 color	.22½	.23

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.		.0375
125-127 a.m.p.		.0387
128-130 a.m.p.		.0412
133-135 a.m.p.		.0437
135-137 a.m.p.		.0455
Crude Scale:		
124-126 w.s.	.0205	.0215
124-126 y.s.	.0200	.0210

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

(Effective January 28, 1937)

East Texas (May 22, 1937)*	$1.35
Van, Tex.†	1.10
Camp Hill, Tex.	1.27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1.20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

North Louisiana and Arkansas

Smackover, all grades	$ .90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Ark.	.90
Ouachita County, Ark.	.90
Lisbon, La. (Dec. 13, 1937)*	.98

*Caddo Crude Oil Purchasing Co.

Gulf Coast

(Effective January 28, 1937)

Choctaw and Darrow, La. See note below	
Clay Creek, Tex.	$1.00
Garden Island, La.	1.37
Cleveland, Tex.	1.27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate (La.) (Jan. 28, 1937)	1.24

Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36. Effective October 1, 1937, Stanolind Oil & Gas Co. in Evangeline, La., pays 92 cents for below 20 gravity, adding 2 cents for each degree upward to 40 and over, at $1.34.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1.12
Greybull, Wyo.*	1.30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light*†	1.30
Grass Creek, Wyo., heavy (Nov. 4, 1936)*†	.62
Hamilton Dome, Wyo., (Jan. 1, 1937)*	.67
Elk Basin, Wyo., light*†	1.30
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light	.70
Hogback, N. M. (Jan. 28, 1937)*	1.33
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†‡	1.23
Rock Creek, Wyo.†	1.20½
Lea County, N. M. (see West Texas gravity table).	
Artesia, N. M. (Jan. 2, 1937)‡	.90
Maijamar, N. M. (Jan. 28,1937)‡	.90
Canon City and Florence, Colo.	1.10
Lance Creek, Wyo.	.97
Lander, Wyo. (Jan. 1, 1938)§	.51½
Sunburst, Mont. (Nov. 16, 1937)†	.90
Cat Creek, Mont. (Jan. 1, 1938)‡	$1.30
Garland, Wyo. (Jan. 1, 1937)†	.50

*Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Texas Co. (April 1, 1938). §Hudson Oil Co.

Middle Western States

OHIO OIL CO.
(Effective January 28, 1937)

Lima	$1.00
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich. (Jan. 5, 1938)*	1.12
West Branch, Mich. (Dec. 29, 1937)†	.80
Buckeye (Jan. 8, 1938)	1.09½
Arenac, Mich. (Dec. 29, 1937)†	.80
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River	1.42
Kentucky River	1.50
Western Kentucky	1.40

*Posted by Pure Oil Co.
†McClanahan P. L. and Simrall.
Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

West Texas

See gravity table.	
Pecos County*	$ .91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Southwest Texas

(Effective January 28, 1937)

Pettus	$1.37
Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.09
Lytton Springs	1.12
Luling	1.00

Saxet and Taft take same gravity table as Gulf Coast.

Eastern States

TIDE WATER ASSOCIATED OIL CO.
(Effective March 7, 1938)

Bradford, Pa.	$2.05
Allegany, N. Y.	2.05

SOUTH PENN OIL CO.
(Effective March 7, 1938)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.05
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	1.71
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.65
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.55
Corning Grade Oil in Buckeye Pipe Line Co.'s lines	1.27

PENNZOIL CO.
(Effective March 7, 1938)

Pennsylvania Grade Oil in National Transit Lines:	
Group A	1.98
Includes, Cochran, Franklin, Hamilton and Doolittle districts.	
Group B	1.97
Includes Tidioute district.	
Group C	1.96
Includes Turkey and Tidioute districts.	
Group D	1.95
Includes Bear Creek and Porkey districts.	
Group E	1.93
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	

PURE OIL CO.
(Effective March 7, 1938)

Cabin Creek, W. Va.	$1.65
Bradford Hollow, W. Va.	1.65
Kelly Creek, W. Va.	1.65

Canada

Ontario (Sept. 9, 1933)*

Petrolia	$2.10
Oil Springs	2.17

TURNER VALLEY NAPHTHAS AND CRUDE OIL
(January 5, 1938, by Imperial Oil, Ltd.)

Clear naphtha and discolored naphtha, 65 gravity and higher	$2.14
Discolored naphtha and crude oil, 40-40.9 gravity	1.14
Increasing 2 cents for each degree gravity with top price for 64-64.9 gravity	1.62

These prices f.o.b. producers field tankage.

*Imperial Oil, Ltd.

Mexico

Heavy Mexican crude	*$.85

*In U. S. currency, f.o.b. ship, based on February spot market transactions.

Crude Prices by Gravities

	Oklahoma-Kansas	Oklahoma-Kansas	North and Central Texas	East Central Texas (Mexia district)	North Louisiana-Arkansas	Gray County, Texas	Hutchinson-Carson counties, Texas	Rodessa, Louisiana-Texas and Panola County, Texas	Conroe, Tomball, Raccoon Bend, (Deep) Sateuma	Gulf Coast	Gulf Coast	Lea County, N. Mex. West Texas except Pecos County	Mirando district, Texas	Marion County, Texas	Refugio, Greta, Saxet, Taft, Texas	Anahuac, Flour Bluff, Dickson, Turtle Bay	White Castle, Louisiana	Iowa, Louisiana	Cayuga, Texas
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Bel. 18	....	....	....	....	....	....	....	....	....	$ 95	....	....	....	....	....	....	....	$ .90	....
18-18.9	....	....	....	....	....	....	....	....	....	95	....	....	....	....	....	....	....	.92	....
19-19.9	....	....	....	....	....	....	....	....	....	95	....	....	....	....	....	....	$ .94	.94	....
20-20.9	....	....	....	....	....	....	....	....	....	95	$ 95	....	$ 96	....	$1.01	....	.96	.96	....
21-21.9	....	....	....	....	....	....	....	....	....	98	.98	....	.98	....	1 03	....	.98	98	....
22-22.9	....	....	....	....	....	....	....	....	....	1 01	1 01	....	1.00	....	1.05	....	1.01	1 01	....
23-23.9	....	....	....	....	....	....	....	....	....	1.04	1 04	....	1.02	....	1.07	....	1 04	1 04	....
24-24.9	....	....	....	....	....	....	....	....	....	1.07	1.07	....	1.04	....	1.09	....	1.07	1 07	....
Bel. 25	....	$ 98	....	....	$ 90	....	....	$ 93	....	....	....	....	....	$ 90	....	....	....	....	$ 88
25-25.9	....	1 00	....	....	.92	....	....	.95	....	1 10	1 10	$ .78	1.06	.92	1.11	....	1.10	1.10	.90
26-26.9	....	1 02	....	....	.94	....	....	.97	....	1 13	1.13	.80	1.08	.94	1.13	....	1.13	1.13	.92
27-27.9	....	1 04	....	....	.96	....	....	.99	....	1 15	1.15	.82	1.10	.96	1.15	....	1.15	1.15	.94
28-28.9	....	1.06	....	....	.98	....	....	1.01	....	1 17	1.17	.84	1.12	.98	1.17	....	1.17	1 17	.96
Bel.29	$1 06	....	$ 96	$1.03	....	....	....	....	$1 20	....	....	....	....	....	....	....	....	....	....
29-29.9	1 08	1 08	98	1 05	1.00	....	....	1 03	1 22	1.19	1.19	.86	1.14	1.00	1.19	....	1.19	1 19	.98
30-30.9	1 10	1 10	1 00	1 07	1 02	....	....	1 05	1 24	1 21	1 21	.88	1 16	1 02	1 21	$1 16	1 21	1 21	1 00
31-31.9	1 12	1 12	1 02	1.09	1.04	....	....	1.07	1 26	1 23	1 23	.90	1.18	1.04	1 23	1 18	1 23	1 23	1.02
32-32.9	1 14	1 14	1 04	1.11	1 06	....	....	1 09	1 28	1 25	1 25	.92	1.20	1 06	1 25	1 20	1 25	1 25	1 04
33-33.9	1 16	1 16	1 06	1 13	1 08	....	....	1 11	1 30	1 27	1 27	.94	1.22	1.08	1 27	1 22	1 27	1 27	1 06
34-34.9	1 18	1.18	1 08	1.15	1.10	....	....	1 13	1 32	1 29	1.29	.96	1.24	1.10	1.29	1 24	1.29	1 29	1.08
Bel. 35	....	....	....	....	....	$ .96	$ .91	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1 20	1 20	1 10	1 17	1 12	.98	.93	1 15	1 34	....	1 31	.98	1 26	1.12	1 31	1 26	1 29	1 29	....
36-36.9	1 22	1 22	1 12	1 19	1 14	1 00	.95	1 17	1 36	....	1.33	1.00	1 28	1.14	1 33	1 28	1 29	1 29	....
37-37.9	1 24	1 24	1 14	1 21	1 16	1 02	.97	1 19	1 38	....	1 35	1 02	1 30	1.16	1 35	1 30	1 29	1 29	....
38-38.9	1 26	1 26	1 16	1 23	1 18	1 04	.99	1 21	1 40	....	1 37	1 04	1.32	1.18	1 37	1 32	1 29	1 29	....
39-39.9	1 28	1 28	1 18	1 25	1 20	1 06	1 01	1 23	1 42	....	1.39	1.06	1.34	1.20	1.39	1.34	1 29	1 29	....
40,over	1 30	1 30	1 20	1 27	1 22	1.08	1 03	1 25	1 44	....	1.41	1.08	1.36	1.22	1.41	1.36	1 29	1.29	....

Column 1—Companies posting are Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Bay, Eason, El Dorado, Cities Service, Falcon, Globe, Gulf, Johnson, Kanotex, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun, Vickers and Wilcox.
Column 2—Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.
Column 3—All purchasers.
Column 4—Humble Oil & Refining Co. and Sinclair Oil Purchasing Co.
Columns 5, 6, 7 and 8—All purchasers.
Column 9—Humble Oil & Refining Co. and Sun Oil Co. Tide Water Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. (Raccoon Bend prices are for deep sand oil.)
Column 10—The Texas Co. (Gulf Refining Co. pays same prices up to and including 34 gravity, but continues its 2-cent spread up to 40 and over at $1.41.)
Column 11—Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Sun Oil Co.
Column 12—All purchasers.
Column 13—All purchasers (effective July 6, 1937).
Column 14—Magnolia Petroleum Co.
Column 15—Humble Oil & Refining Co. (effective July 6, 1937).
Column 16—Humble Oil & Refining Co.
Columns 17 and 18—Shell Petroleum Corp.
Column 19—Tide Water Oil Co.

Rocky Mountain Runs

Production estimates for the week ended April 23:

WYOMING

	Bbls.
Salt Creek	15,800
Big Muddy	1,280
Badger Basin	190
Black Mountain	100
Dallas Derby	580
Dutton Creek	40
Elk Basin	30
Frannie	1,100
Garland	2,300
Grass Creek	10
Hamilton dome	1,940
Hidden dome	140
Hudson	290
LaBarge	790
Lance Creek	10,440
Lost Soldier	1,290
Medicine Bow	3,180
Mule Creek	140
Midway	40
Oregon Basin	1,850
Osage	910
Pilot Butte	20
Quealy dome	690
Rock River	2,240
South Casper	490
Poison Spider	280
Teapot	20
Warm Springs	70
Wertz	700
Total Wyoming	47,050

MONTANA

Border	60
Cat Creek	500
Cut Bank	7,000
Dry Creek	1,620
Kevin-Sunburst	3,230
Pondera	670
Total Montana	13,080

COLORADO

Florence	200
Fort Collins and Wellington	330
Iles dome	2,570
Moffat	460
Orchard	50
Rangely	90
Tow Creek	190
Price	10
Total Colorado	3,900

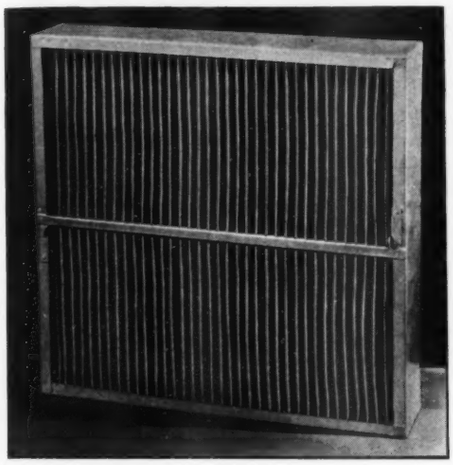
NEW MEXICO

Cooper	5,170
Eaves	960
Eunice	26,570
Hardy	1,850
Hobbs	14,970
Jal	1,260
Langlie	3,650
Lynch	620
Lynn	820
Mattix	2,880
Monument	27,910
North Lynch	50
Penrose	5,420
Rhoades	90
Skelly	1,950
South Eunice	2,870
Vacuum	1,220
Artesia-Maljamar	6,500
Getty	200
Hogback	200
Rattlesnake	640
Table Mesa	90
Total New Mexico	105,890
Total Rocky Mountain region	169,920

New or Improved Equipment

Staynew's Wire-Klad Dry-Type Air-Filter Is Fire-Resistant

Announced by Staynew Filter Corp., Rochester, N. Y., is a dry-type air-filter possessing, the company says, unusual advantages for industrial and



domestic air-conditioning. The new filter, the Wire-Klad, has among other features that of flame-resistance, meeting the provisions imposed by the National Board of Fire Underwriters. Thus its installation is practical where fire hazard otherwise might exist.

The descriptive name refers to the wire mesh reinforcement of the fins. The fin construction affords large filtering area in relatively small space. The wire mesh reinforces the filtering medium so strongly that the filter can be cleaned indefinitely by high-pressure air or vacuum. Several kinds of filtering media to suit varying conditions are available. One material, known as Feltex, is said to be practically impervious to the passage of even microscopic dust particles, yet offers extremely low resistance to air flow.

If exposure to oil or greasy substances makes cleaning with a solvent necessary, the wire-reinforced filter insert can be lifted from the frame. When the filter finally is worn out, the wire-reinforced filter insert only need to be replaced. Standard and special sizes are available. There are three standard depths, 2-, 4-, and 6-inch, and four standard sizes, 20 by 20-inch, 16 by 20-inch. 16 by 25-inch, and 20 by 25-inch.

Bulletins, Booklets and Other Literature for the Trade

Cabot Shops, Inc., Pampa, Tex., has announced three bulletins. One is on Cabot underpull jacks, one on Cabot swings, and one on the Cabot pendulum stroke post, with knockoffs.

In addition to miscellaneous articles of interest, the latest issue of the Wyatt Way, published by Wyatt Metal & Boiler Works, Dallas and Houston, Tex., presents a remarkably attractive picture of tube and shell condensers and heat-exchangers fabricated by the company.

The Garlock Packing Co., Palmyra, N. Y., is offering a 16-page bulletin containing detailed information concerning the Garlock Split-Klozure, a patented device which is said to solve the problem of providing an oil seal that can be installed without dismantling heavy machinery.

Determination of operating points of centrifugal pumps working on pipe lines is discussed in the current issue of the Byron Jackson News Letter, published by Byron Jackson Co., Los Angeles, Calif.

A new speed-changer, utilizing the principle of the Allis-Chalmers vari-pitch sheave, is described in a 12-page bulletin obtainable from Allis-Chalmers Manufacturing Co., 1126 South Seventieth Street, Milwaukee, Wis.

Eight separate bulletins have been published by Atlas Supply Co., Muskogee, Okla., all available upon request. They contain specifications, illustrations and general information pertaining to the new Atlas pumping units.

A complete manual and data book on mechanical packings has been published by Linear Packing & Rubber Co., Inc., Philadelphia. It enables any user of packings to select, quickly and easily, the kind of packing best suited to his requirements.

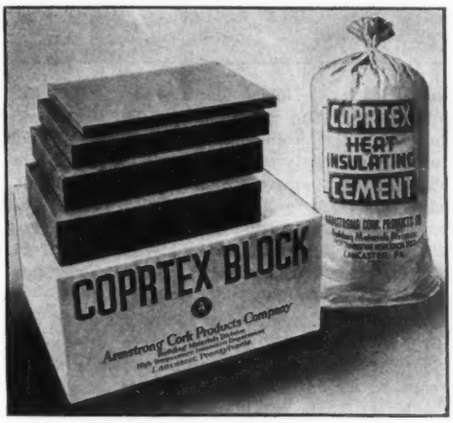
Featuring the advancement of air transportation during the past 10 years, the current issue of "Lufkin Line," publication of the Lufkin Foundry & Machine Co., Lufkin, Tex., contains much more of interest, including snapshots of prominent personalities attending the recent A.P.I. division meeting in Amarillo, Tex.

Inspecting Kobe Pumping Plants

C. J. Coberly, president of Kobe, Inc., Los Angeles, Calif., is on a business visit to the company's branch in Oklahoma City, for a stay of several weeks. While there he will inspect the Kobe hydraulic pumping plants now operating in the Oklahoma City oil fields, a large number of which have been installed during the past year. Before returning to his headquarters in Los Angeles, Mr. Coberly will attend the International Petroleum Exposition in Tulsa, and the midyear meeting of the American Petroleum Institute at Wichita, Kans.

Two Products Are Offered for High-Temperature Equipment

Announcement has been made by Armstrong Cork Products Co., of Lancaster, Pa., of two new products, Coprtex high-temperature block and



Coprtex heat insulating cement, for service in high-temperature equipment. Both products, according to the manufacturer, have performed well in a long series of rigid tests in the Armstrong central technical laboratory and in actual installations.

Features of Coprtex block are a high-temperature limit of 1,800 degrees Fahrenheit, low lineal shrinkage, superior insulating efficiency, high modulus of rupture, accommodation of rivet-heads and similar projections, lightness in weight, and availability in special as well as standard shapes. The manufacturer recommends Coprtex cement for its high-temperature limit, low lineal shrinkage, superior insulating efficiency, salvage properties, exceptional stickability, and ease of application.

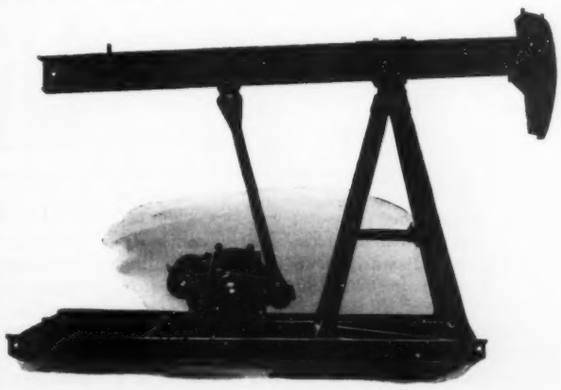
Two More Continental Stores

Continental Supply Co. is opening two additional stores, one at Noble, Ill., under the direction of L. C. Combs, manager, and one at Cotton Valley, La., under the direction of Deal P. Davis, former manager at Talco. Mr. Davis has been succeeded at Talco by C. A. Brownfield.

DESIGN PROVIDES PROPER BEARINGS AND LUBRICATION

The Reid Type UP-10 pumping unit, offered by Joseph Reid Engine Co., Oil City, Pa., is of the single-crank, beam-balanced type, rated 10 horsepower at 20 strokes per minute, with a maximum polished-rod load of 10,000 pounds and 37-inch stroke. Particular care has been taken in the design to provide proper bearings and adequate lubrication for the bearings.

The base is of welded construction, of sufficient length to permit mounting of the prime mover on universal slide rails bolted to the base. The gear-box is the Foote Brothers 12-DO unit. A brake is standard equipment. The counterweights are individually clamped to the beam and equipped with handles, a construction that makes it easier and safer to add or remove weights. Detailed information is given in bulletin No. 85.



Many Savings Are Effected by Hobbs' Latest Model Trailer

A major oil company receives credit for development of this latest model Hobbs trailer.

announced by Hobbs Manufacturing Co., Fort Worth, Tex. The Hobbs gang trailer is designed to answer the problem of getting men and tools safely and quickly out to the well and back. One superintendent operating in Oklahoma is quoted as saying it saves him at least $13 a day. This trailer, according to the manufacturer, saves cost of truck, loading and unloading, waiting for truck, hunting lost tools, walking to warehouse and many steps throughout the day.

The toolbox, mounted at the forward end with a railing around it, provides a safe, comfortable place for men to ride. The trailer itself is big and heavy to accommodate tools needed for jobs on the lease. Tools not in use can be kept in the toolbox. Time is saved when the men know exactly where the tools are, and tools cannot be lost so easily.

Feild Joins Reed Roller Bit

Reed Roller Bit Co., Houston, Tex., has appointed Alex S. Feild manager of the air-balanced pumping unit division. After receiving his degree at the University of Cincinnati, Mr. Feild served four years with the Standard Oil Co. of Louisiana as construction engineer and farm boss. At the end of that period he joined the Shell Petroleum Corp. and for four years was chief mechanical engineer of the central division and development superintendent in West Texas. Then for two years he was chief petroleum engineer with the Vacuum Oil Co. Before joining the Reed organization, Mr. Feild was connected with the United States Rubber Co. His headquarters will be in Houston.

Eastman Offering New Service in Two Large Oil Regions

The Eastman Survey Co. has added the Eastman-Yowell perforation washers to its services in the Mid-Continent and Gulf Coast areas. This equipment, according to the company, will check and wash accurately perforations made with all mechanical or gun perforators; will check perforations and wash the well fluid back through the perforations and against the walls of the hole; will force acids effectively behind perforated casing and liners under pressure; will locate holes in casing; will wash liners loose so they can be removed easily; will wash out cavities for cementing, and will open perforations for water-locating services.

Although this equipment is new in the Mid-Continent and Gulf Coast areas, it is widely used in California. The washer service, available on a rental service basis only, is supervised by an experienced man. Eastman has organized the Eastman Manufacturing Co. to handle this service.

Headquarters of both the Eastman Survey Co. and Eastman Manufacturing Co. are in Dallas, Tex., with branch offices in Oklahoma City, Houston, and Long Beach, and service branches in most oil-producing areas.

Swindell Represents Texasteel

Floyd L. Swindell has been appointed factory representative in Oklahoma for Texasteel Manufacturing Co. His headquarters will be 235 West Eleventh Street, Apartment 24, Tulsa. Mr. Swindell has been connected with the Fort Worth general offices of the company for the past two years. While in Texas he made a special study of sucker-rods under various operating conditions.

Increased Strength Is Built Into Line of Williams Wrenches

An improved type of carbon-steel wrench is being supplied by J. H. Williams & Co., 75 Spring Street, New York, in a complete standard line consisting of 50 patterns and more than 1,000 sizes. These wrenches, the manufacturer says, are approximately twice as strong as old-fashioned carbon-steel wrenches and average 93 per cent as strong as alloy steel wrenches of similar size. The unusual strength is said to result from the fact that they are drop-forged from improved-quality carbon steel and specially processed to exacting specifications. Advantages claimed include better hand grip and greater and safer bearing on the nut.

J. H. Williams & Co., as a large manufacturer of both carbon and alloy wrenches, recommends the carbon wrenches for most industrial uses and the chrome-molybdenum wrenches for automotive and other purposes where operation in close quarters is required, where higher polishing and chrome-plating are desired, or where extra strength is essential.

New Regan Crownblock Offers Option of Three Sheaves

Closely following development of a double-deck 7-, 8-, or 9-sheave crownblock by Regan Forge & Engineering Co., San Pedro, Calif., comes an-

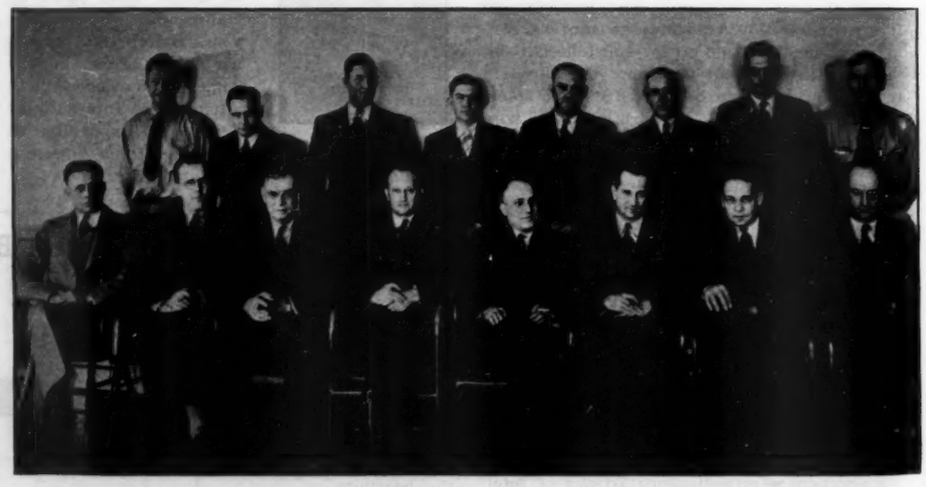
nouncement of a companion block, Type EB. It is made with option of 5, 6 or 7 sheaves and has a capacity of 300 tons for 5 sheaves and 360 tons for 6 and 7 sheaves. It is equipped with 48-inch diameter sheaves in the upper deck and 36-inch diameter sheaves in the lower deck. Where necessary a catline or a sand-sheave attachment is available.

The sheaves are chrome-alloy cast steel, grooved for 1-, 1⅛-, or 1¼-inch wire. Weight of the 7-sheave model is 10,770 pounds. The staggered-bearing principle is embodied.

Larkin in Corpus Christi

The Larkin Packer Co., Inc., St. Louis, Mo., has opened a store and warehouse at 917 Port Avenue, Corpus Christi, Tex. Complete stocks of Larkin products will be carried, and 24-hour-a-day service is accessible. Francis Devers, formerly warehouseman at Kilgore, Tex., is in charge. Willis B. Porter, Wichita Falls, Tex., has been added to the field sales force. He will work the North Texas district. In the Texas Panhandle the company has placed Oliver W. Holmes, formerly at Great Bend, Kans. Mr. Holmes will reside in Pampa.

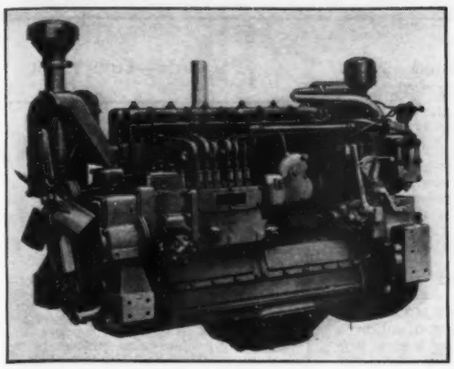
CHEMICAL PROCESS EXECUTIVES TALK THINGS OVER



Officers and district managers of the Chemical Process Co. met recently at the headquarters office in Breckenridge, Tex., to discuss company affairs. All present except F. F. Carr, district manager in Shreveport, La. Standing: E. G. (Swede) Rhenstrom, pilot, Breckenridge; C. R. Vincent, district manager, Russell, Kans.; A. C. Hanna, district manager,, Breckenridge; T. S. Lancaster, district manager, Seminole, Okla.; C. F. Hogan, district manager, Odessa, Tex.; H. H. Bowser, district manager, Anson, Tex.; C. J. Thompson, district manager, Hugoton, Kans., and Panhandle area; O. K. Wills, district manager, Luling, Tex. Sitting: C. V. Burkett, district manager, Wichita, Kans.; A. J. Buchanan, secretary-treasurer, Breckenridge; W. E. Norton, district manager, Wichita Falls, Tex.; C. K. West, president, Breckenridge; P. W. Pitzer and G. R. Whitney, vice presidents, Breckenridge; M. E. Chapman, vice president, Tulsa; P. W. Morrison, district manager, Hobbs, N. M.

Caterpillar Presents Addition to Its Industrial Diesel Line

Adding to its line of industrial diesel engines, Caterpillar Tractor Co. has announced a 6-cylinder, 66-horsepower model, designated as the D4600. The



engine has a bore and stroke of 4¼ by 5½ inches and turns at 1,400 r.p.m., normal governed speed. Exceptionally smooth running and unusually flexible, the model is suited for use in shovels, draglines and hoists, or connected to a generator as an electric power producer.

The engine is of the 4-stroke-cycle, valve-in-head, water-cooled design, and it features solid injection of the fuel into precombustion chambers. The fuel injection system is similar to that of all Caterpillar diesels. Both the injection pumps and injection valves are set at the factory and require no field adjustment. The engine will power three-quarter-yard shovels and draglines.

A 14-horsepower, 2-cylinder gasoline starting-engine is mounted at the rear of the diesel, directly over the flywheel housing, having a governed speed of 3,000 r.p.m. This engine cranks the diesel through a pinion-and-clutch arrangement which automatically disengages when the larger engine fires.

Improved Line of Multi-Range Welders Offered by Hobart

Hobart Brothers Co., Troy, Ohio, has announced a new Multi-Range arc welder, which is said to eliminate dead spots in welding current. The welder offers 1,000 combinations of voltage and welding current and a new remote control.

The new models embody the same principles of control as previous models, but the wide welding range of each machine is now divided into 10 ranges with a 100-step, continuously wound rheostat operating in each range. The result is said to be a complete absence of dead spots, closer control of the relationship between open-circuit voltage and welding current, and increased smoothness of operation. Oscillograph tests and reports from operators indicate improved stabilization as a result of the special windings, extra turns and added copper which provide reactance of the right degree for each of the 10 welding ranges.

Here and There With Men Who Manufacture Equipment

The Lincoln Electric Co., Cleveland, Ohio, has established a manufacturing subsidiary, Lincoln Electric Co. (Australia) Pty., Ltd., at Sydney, Australia. A factory has been purchased for arc welding equipment manufacturing operations.

W. K. Mellon, vice president of Petroleum Rectifying Co. of California, left Los Angeles for a trip which will carry him through various oil-producing areas. He will inspect the Petreco Electromatic desalting plants operating in these districts.

Harold J. Skidmore, formerly assistant superintendent of the Detroit, Mich., plant of Morse Chain Co., has been appointed factory manager and superintendent, succeeding C. B. Mitchell, resigned. L. D. Worden has been added as assistant sales manager, in charge of industrial products manufactured in the Detroit plant.

The Continental Supply Co. has announced opening of a store at Seagraves, Tex., under the management of James C. Hill.

Ralph Kelly, vice president of Westinghouse Electric & Manufacturing Co., has been placed in charge of sales with headquarters in the Pittsburgh executive offices. Formerly he was in charge of Pittsburgh district works including the headquarters plant in East Pittsburgh. Mr. Kelly has been with Westinghouse since 1909, the year he graduated from Harvard.

Cy W. Smith, Dallas, Tex., sales representative of Beaver Pipe Tools, Inc., Warren, Ohio, has been in St. Paul Hospital, Dallas, where he was taken for an emergency operation. Reports point to his early recovery. He was on a trip to West Texas when stricken.

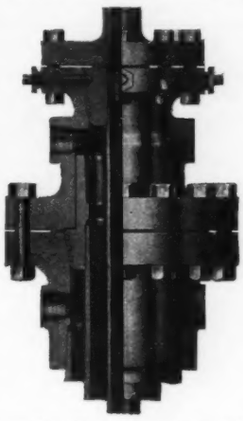
More Work Is Possible With Aluminum-Alloy Shovel

A new type of shovel, extremely light in weight and particularly safe in hazardous occupations, has been announced by the Wood Shovel & Tool Co., Piqua, Ohio. Because the blades are of specially treated aluminum alloy, the shovels are not only light, but rust-proof, acid-resisting and nonsparking, making them fitted for use in chemical plants, paint factories, oil refineries, and all industrial occupations where acid materials are used or where the danger from spark-firing is present.

The aluminum is said to eliminate 3 to 5 pounds of dead weight, the equivalent of several tons during a day, and making more work possible in the oil field or refinery. These new-type shovels come in seven different models and in various sizes to suit special requirements.

Beaumont Iron Works Develops Improved Type Casing-Nest

Beaumont Iron Works Co., Beaumont, Tex., has placed an improved casing-tubing head combination for use with pressure-control equipment. This



new casing-nest, designated as type HZX, is of a full open-hole design which permits drilling, running casing, drilling in and running tubing through the assembly.

Blowout-preventer equipment flanges directly to the casinghead body, sealing off an A.P.I. steel-ring gasket. The inner string of casing is suspended from a tapered hanger, which seats in the tapered bowl of the casinghead body and packs off on three rings of hydraulic packing. After cementing the inner string, the blowout-preventer equipment is replaced by the tubing-head body as shown in the illustration. Blowout-preventer equipment then is installed on top of the tubing-head, the well is drilled in, and tubing is run and suspended from a tapered hanger, which also packs off in the tubing-head body on three rings of hydraulic packing.

Four setscrews, each provided with a stuffing-box, are equally spaced around the circumference of the top tubing-head flange, and are made up to engage a slot provided in the tubing-hanger and thus hold the tubing in the well against pressure while the blowout-preventer equipment is removed. A bonnet bolts down on top of the tubing-head, a metal-ring gasket being provided on top of the tubing-hanger to effect a seal. Christmastree connections are installed on top of the bonnet. The well may be reworked under pressure at any time by sealing the tubing, removing the christmastree, installing blowout-preventer equipment and releasing the four setscrews. The HZX casing-nest is tested to 6,000 pounds pressure.

LUFKIN COMPLETES ITS TWO-YEAR EXPANSION PROGRAM

Lufkin Foundry & Machine Co., Lufkin, Tex., has completed a two-year expansion program which increases production more than 125 per cent. This company, organized in 1900, pioneered reduction-gear oil-well pumping and has attained world-wide distribution of its product.

The expansion program included new buildings and particularly new tools, the plant being practically 100 per cent retooled with the very latest precision production machines. Reduction-gear units, principal product of the company, met with acceptance from their introduction almost 15 years ago. Many patents covering oil-field appliances, such as the Lufkin-Trout counterbalance crank, are controlled by W. C. Trout, president of the company. Offices and warehouses are maintained in the principal oil fields of the United States. Export offices are in New York.

CLASSIFIED ADVERTISING

Patent Attorneys

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PATENT LAWYER

Patents obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington, D. C. Address any of these offices.

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For Sale—Maps

1938 REVISED EDITION
MAP of State of Texas, Eastern N. M., parts of Southern Okla., SW Ark. and La., shows Oil and Gas Fields in color, Counties, County Seats, elevations, coordinated alphabetical index of counties and fields. Price $1.00 postpaid

Write for descriptive folder of Oilfield and County Ownership Maps.

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NEW colored map of entire San Joaquin Valley, California, $7.50. Shows all oil and gas fields and prospect wells, with status on March 10, 1938. Earl M. Price & Co., Bakersfield, California.

Leases and Drilling Blocks

YOAKUM CO., Texas, 10 year oil lease for sale, $15 bonus, $1 acre delay rental on 320 acres consisting south quarters Sec. 596 and 597, in tract 2 miles long, ¼ mile wide, traversing seismograph high in very favorable sector soon to be drilled. This lease may guard your interest on this structure. Dr. J. A. Robinson, Vets. Adm., Los Angeles, California.

SECURITY ABSTRACT COMPANY

El Dorado, Union County, Arkansas, Magnolia, Columbia County, Arkansas. Fee, Lease and Mineral ownership on short notice. Ownership maps.

FOR
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Oil Leases and Royalties
Write
C. W. DEMING, Registered Dealer
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LEASES, Royalties and drilling blocks throughout present hot play southern Arkansas. El Dorado Oil Exchange, Garrett Hotel Building, El Dorado, Arkansas.

NEW MEXICO Oil Leases for sale, Wholesale. Inquiries invited. Write, Box 507, Las Vegas, New Mexico.

FOR SALE

50,000 acres leases near Nesson Structure in N.W. North Dakota where California Co. now drilling test.

Write Lock Box 214,
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DRILLING DEAL WANTED: 8,000 A. in Washita Co., Okla., centering around Secs. 19-30, Twp. 11, R. 15, and Secs. 24-25, Twp. 11, R. 16; 13 mi. NE of Cordell; next rental due March 31, 1939. H. H. KLASSEN, Box 55, REEDLEY, CALIF.

HAVE 500 acres, production on four sides. Good structure. Four sands. Will sell 1/32 interest $100. 1/2 interest $1600 and drill first well. Particulars Box 10, Kincaid, Kansas.

Leases and Drilling Blocks

ATTENTION! Big oil deals are easier to put over than little ones when you get to the right man. Send no information. Just drop us a card. P. O. Box 2603, Tulsa, Oklahoma.

New Mexico OIL LEASES WHOLESALE
40 acres at a time.
Roy G. Barton, Clovis, New Mexico.

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up. Owners—Address Attorney, Box 1122, Little Rock, Ark.

OIL LEASE DEALERS and salesmen write H. D. Wilcox, Marfa, Texas, for the best deal ever offered near drilling well.

SPECIAL offerings, Leases and Royalties, joining section well drilling in proven field, eight producers. Also land in fee, potential oil country. J. N. SWANSON, Sayre, Oklahoma.

NEW MEXICO'S NEWEST WILDCAT WELL. Another Tulsa Field in the making, buy acreage cheap near well now. H. E. SEWARD, French, New Mexico.

LEASE, want action, best location, SW¼ NE¼ sec. 12-10n-7e, Seminole County, Oklahoma. Earl Kelly, Bird City, Kans.

WILL BUY 10 to 100 bbls. production with room for future development. Give details. Suite 406, Beacon Bldg., Tulsa, Okla.

LEASES—ROYALTY. Few small tracts around the Dobbs Oil Co.'s Ordovician Wildcat Eastland County block. Low price. E. CROFT, Proctor, Texas.

ECTOR CO. oil leases—Texas farms—Dallas homes, all kinds. Write your wants. Anderson, 1014 S. Cumberland, Dallas, Texas.

Situations Wanted

EXPERIENCED gas engineer, specialist in measurement and control division of Natural Gas Industry. Sixteen years diversified practical experience. Good references. Address Box J-375, The Oil and Gas Journal, Tulsa, Okla.

PETROLEUM Refiner and Chemist. M. S. degree. Complete plant experience, 6 years in asphalt and road oil processing. Address Box J-351, The Oil and Gas Journal, Tulsa, Oklahoma.

ENGINEER thoroughly experienced in construction, operation and maintenance of modern refineries including combination topping and cracking units, vacuum eqpt. and mfg. of light and heavy oils. Young man. Address Box J-370, The Oil and Gas Journal, Tulsa, Oklahoma.

Situations Wanted

ACCOUNTANT, employed, thoroughly experienced oil taxes, accounting, auditing, desires change. Consider 30 days special work. Story, Birdwell Hotel, Dallas.

POSITION wanted by college graduate in Geology. Experienced operating a Sullivan Seismograph Core Drill and correlating results. Experienced in exploration, leasing and development work. Address 1215 Kearney St., Manhattan, Kansas.

Help Wanted

PRODUCTION DEPARTMENT MANAGER

Wanted by progressive organization a man experienced in acquiring leases, producing leases and supervising their development and production. Knowledge of Texas and Louisiana fields particularly desirable. State experience in detail, age and salary in last position. All replies will be treated confidential. Address Box J-340, The Oil and Gas Journal, Tulsa, Okla.

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WITH SOUND EXPERIENCE IN MODERN LUBRICATING REFINERY, PARTICULARLY SOLVENT EXTRACTION, WHO DESIRES TO RETURN TO GERMANY PERMANENTLY FOR RESPONSIBLE POSITION IN EXECUTIVE CAPACITY IN LUBRICATING PLANT THERE — WRITE FULLY EXPERIENCE AND QUALIFICATIONS —NO AMERICAN COMPANY INVOLVED—APPLICATIONS TREATED CONFIDENTIALLY IF DESIRED.

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THE OIL AND GAS JOURNAL
TULSA, OKLA.

WANTED—Chemist having five or more years' experience in charge of asphalt manufacture, corrosion control, treating, boiler feed water control, research and shipments. Must have technical education as well as practical training and ability to organize this department. State salary desired. Address Box J-374, The Oil and Gas Journal, Tulsa, Oklahoma.

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3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
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We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

For Sale—Equipment

USED EQUIPMENT

Offered subject to prior sale.

ALMOST NEW ROTARY EQUIPMENT

The following items of Rotary Drilling machinery are, for all practical purposes, the same as new; all late type equipment, which has been used to drill only one 6,000-ft. well. A substantial saving in price is offered without sacrifice to quality as every item is first class and priced to sell competitively on the used market. Items located at Corpus Christi. Ph: 574 and 2670.

Boiler Firing Control:
2" Inferno Screw Type with manifold.

Rotary Draw Works:
7½" Type 1805 Gumbo Buster latest type Unit Jack Shaft Draw Works equipped with American Automatic Cathead and complete with chain.

Electric Generator:
Garrott Type DLA. 5-KW Steam Turbo Generator, CC-44, Serial No. 137.

Rotary Hook:
Byron Jackson Triplex, 150 Ton Rotary Hook complete with "locking arm."

Lubricator:
6" Gulf Steam Line Lubricator with sight feed and 2" connection. Also one 8" same description.

Weldless Elevator Links:
One set 2⅜" x 84" Byron Jackson Weldless Elevator Links with Single Handles.

Boiler Feed Pumps:
(Two) 10" x 4½" x 10" Gumbo Buster, Type L, Model A, Boiler Feed Pumps with High Pressure Steel Fluid Ends.

Slush Pumps:
(Two) 14½" 7¼" x 18" Gumbo Buster, Type G, Model C, Steam Slush Pumps. Latest type and same as new.

Throttle Valve:
3" Gumbo Buster Balanced Throttle Valve with 1-3" 8-thd. screw end and other end flanged and drilled for bolting to engine manifold.

Gate Valves:
(Five) 3" W.K.M. Fig. 1000, 1,000-lb. test, 400-lb. OWG Working Pressure, 200-lb. Steam Working Pressure through conduit lubricated Gate Valves.

PIPE MACHINE
No. 12 Duplex 5175 Bignall & Keller Pipe Machine in good working condition with Landis Heads for 6" to 12¾" pipe inclusive. Located at Breckenridge, Texas. For price and arrangements for inspection phone Wichita 2-1431 or LD-59; or Breckenridge 836.

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Excellent string of 7" OD Lapweld Casing ready for delivery from Pampa yards. This is 24-lb., 10-thd., with good 7⅝" long collars. Ph: Pampa 884.

LINE PIPE
We now have exceptionally good values in three grades of 2", 2½", 3" and 4" used Line pipe. Good stocks at all stores. Especially good deal on approx. 40,000 feet of 4-inch Wrought Iron Pipe which has just been taken up. Can also furnish 6", 7" and 8". Phone Wichita 2-1431 or LD-59 or any branch store for prices and stock locations.

THE BRIDGEPORT MACHINE COMPANY
Wichita, Kansas, and Branches.